amdt 9

SEQUENCE LISTING

<110> Anderson, David J.
Dong, Xinzhong
Zylka, Mark
Simon, Melvin
Han, Sang-kyou

<120> PAIN SIGNALING MOLECULES

<130> CALTE.004C1

<140> US 09/849,869
<141> 2001-05-04

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<150> US 60/222,344
<151> 2000-08-01

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<150> US 09/704,707
<151> 2000-11-03

<150> US 60/285,493
<151> 2001-04-19

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tttctagccc taaacacatc ggcctcgcca acagcaccca caacaactaa tcca atg 117
Met
1

gac aat acc atc cct gga ggt atc aac atc acg att ctg atc cca aac 165
Asp Asn Thr Ile Pro Gly Gly Ile Asn Ile Thr Ile Leu Ile Pro Asn
5 10 15

ttg atg atc atc atc ttc gga ctg gtc ggg ctg aca gga aat ggc att 213
Leu Met Ile Ile Ile Phe Gly Leu Val Gly Leu Thr Gly Asn Gly Ile
20 25 30

gtg ttc tgg ctc ctg ggc ttc tgt ttg cac agg aac gcc ttc tca gtc 261

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Val Phe Trp Leu Leu Gly Phe Cys Leu His Arg Asn Ala Phe Ser Val
     35                  40                  45

tac atc cta aac tta gct cta gct gac ttc ttc ttc ctc cta ggt cac   309
Tyr Ile Leu Asn Leu Ala Leu Ala Asp Phe Phe Phe Leu Leu Gly His
 50                  55                  60                  65

atc ata gat tcc ata ctg ctt ctt ctc aat gtt ttc tac cca att acc   357
Ile Ile Asp Ser Ile Leu Leu Leu Leu Asn Val Phe Tyr Pro Ile Thr
                 70                  75                  80

ttt ctc ttg tgc ttt tac acg atc atg atg gtt ctc tat atc gca ggc   405
Phe Leu Leu Cys Phe Tyr Thr Ile Met Met Val Leu Tyr Ile Ala Gly
            85                  90                  95

ctg agc atg ctc agt gcc atc agc act gag cgc tgc ctg tct gta ctg   453
Leu Ser Met Leu Ser Ala Ile Ser Thr Glu Arg Cys Leu Ser Val Leu
        100                 105                 110

tgc ccc atc tgg tat cac tgt cac cgc cca gaa cac aca tca act gtc   501
Cys Pro Ile Trp Tyr His Cys His Arg Pro Glu His Thr Ser Thr Val
    115                 120                 125

atg tgt gct gtc atc tgg gtc ctg tcc ctg ttg atc tgc att ctg aat   549
Met Cys Ala Val Ile Trp Val Leu Ser Leu Leu Ile Cys Ile Leu Asn
130                 135                 140                 145

agt tat ttc tgc ggt ttc tta aat acc caa tat aaa aat gaa aat ggg   597
Ser Tyr Phe Cys Gly Phe Leu Asn Thr Gln Tyr Lys Asn Glu Asn Gly
                150                 155                 160

tgt ctg gca ttg aac ttc ttt act gct gca tac ctg atg ttt ttg ttt   645
Cys Leu Ala Leu Asn Phe Phe Thr Ala Ala Tyr Leu Met Phe Leu Phe
            165                 170                 175

gtg gtc ctc tgt ctg tcc agc ctg gct ctg gtg gcc agg ttg ttc tgt   693
Val Val Leu Cys Leu Ser Ser Leu Ala Leu Val Ala Arg Leu Phe Cys
        180                 185                 190

ggt act ggg cag ata aag ctt acc aga ttg tat gta acc att att ctg   741
Gly Thr Gly Gln Ile Lys Leu Thr Arg Leu Tyr Val Thr Ile Ile Leu
    195                 200                 205

agc att ttg gtt ttt ctc ctt tgc gga ttg ccc ttt ggc atc cac tgg   789
Ser Ile Leu Val Phe Leu Leu Cys Gly Leu Pro Phe Gly Ile His Trp
210                 215                 220                 225

ttt ctg tta ttc aag att aag gat gat ttt cat gta ttt gat ctt gga   837
Phe Leu Leu Phe Lys Ile Lys Asp Asp Phe His Val Phe Asp Leu Gly
                230                 235                 240

ttt tat ctg gca tca gtt gtc ctg act gct att aat agc tgt gcc aac   885
Phe Tyr Leu Ala Ser Val Val Leu Thr Ala Ile Asn Ser Cys Ala Asn
            245                 250                 255

ccc atc att tac ttc ttc gtg gga tcc ttc agg cat cgg ttg aag cac   933
Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg His Arg Leu Lys His
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        260                 265                 270

cag acc ctc aaa atg gtt ctc cag aat gca ctg caa gac act cct gag   981
Gln Thr Leu Lys Met Val Leu Gln Asn Ala Leu Gln Asp Thr Pro Glu
    275                 280                 285

aca gcc aaa atc atg gtg gag atg tca aga agc aaa tca gag cca       1026
Thr Ala Lys Ile Met Val Glu Met Ser Arg Ser Lys Ser Glu Pro
290                 295                 300

tgatgaagag cctttgcctg gcccttagaa gtggctttgg ggtgagcatt gccctgctgc 1086
ac                                                                1088

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<212> PRT
<213> Mus Musculus

<400> 2
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Asn Leu Met Ile Ile Ile Phe Gly Leu Val Gly Leu Thr Gly Asn Gly
            20                  25                  30
Ile Val Phe Trp Leu Leu Gly Phe Cys Leu His Arg Asn Ala Phe Ser
        35                  40                  45
Val Tyr Ile Leu Asn Leu Ala Leu Ala Asp Phe Phe Phe Leu Leu Gly
    50                  55                  60
His Ile Ile Asp Ser Ile Leu Leu Leu Leu Asn Val Phe Tyr Pro Ile
65                  70                  75                  80
Thr Phe Leu Leu Cys Phe Tyr Thr Ile Met Met Val Leu Tyr Ile Ala
                85                  90                  95
Gly Leu Ser Met Leu Ser Ala Ile Ser Thr Glu Arg Cys Leu Ser Val
            100                 105                 110
Leu Cys Pro Ile Trp Tyr His Cys His Arg Pro Glu His Thr Ser Thr
        115                 120                 125
Val Met Cys Ala Val Ile Trp Val Leu Ser Leu Leu Ile Cys Ile Leu
    130                 135                 140
Asn Ser Tyr Phe Cys Gly Phe Leu Asn Thr Gln Tyr Lys Asn Glu Asn
145                 150                 155                 160
Gly Cys Leu Ala Leu Asn Phe Phe Thr Ala Ala Tyr Leu Met Phe Leu
                165                 170                 175
Phe Val Val Leu Cys Leu Ser Ser Leu Ala Leu Val Ala Arg Leu Phe
            180                 185                 190
Cys Gly Thr Gly Gln Ile Lys Leu Thr Arg Leu Tyr Val Thr Ile Ile
        195                 200                 205
Leu Ser Ile Leu Val Phe Leu Leu Cys Gly Leu Pro Phe Gly Ile His
    210                 215                 220
Trp Phe Leu Leu Phe Lys Ile Lys Asp Asp Phe His Val Phe Asp Leu
225                 230                 235                 240
Gly Phe Tyr Leu Ala Ser Val Val Leu Thr Ala Ile Asn Ser Cys Ala
                245                 250                 255
Asn Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg His Arg Leu Lys
            260                 265                 270
His Gln Thr Leu Lys Met Val Leu Gln Asn Ala Leu Gln Asp Thr Pro
        275                 280                 285
Glu Thr Ala Lys Ile Met Val Glu Met Ser Arg Ser Lys Ser Glu Pro
    290                 295                 300
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<213> Mus musculus

<220>
<221> CDS
<222> (137)...(1051)

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tggggaaagc aatggtgaag catttcttgc ctttaagacc tcagcctcac caacagcacc 120
agtgacaaca aatcca atg gac gaa acc ctc cct gga agt atc aac att agg 172
Met Asp Glu Thr Leu Pro Gly Ser Ile Asn Ile Arg
1 5 10

att ctg atc cca aaa ttg atg atc atc atc ttc gga ctg gtc gga ctg 220
Ile Leu Ile Pro Lys Leu Met Ile Ile Ile Phe Gly Leu Val Gly Leu
15 20 25

atg gga aac gcc att gtg ttc tgg ctc ctg ggc ttc cac ttg cgc aag 268
Met Gly Asn Ala Ile Val Phe Trp Leu Leu Gly Phe His Leu Arg Lys
30 35 40

aat gac ttc tca ctc tac atc cta aac ttg gcc cgg gct gac ttc ctt 316
Asn Asp Phe Ser Leu Tyr Ile Leu Asn Leu Ala Arg Ala Asp Phe Leu
45 50 55 60

ttc ctc ctc agt agt atc ata gct tcc acc ctg ttt ctt ctc aaa gtt 364
Phe Leu Leu Ser Ser Ile Ile Ala Ser Thr Leu Phe Leu Leu Lys Val
65 70 75

tcc tac ctc agc atc atc ttt cac ttg tgc ttt aac acc att atg atg 412
Ser Tyr Leu Ser Ile Ile Phe His Leu Cys Phe Asn Thr Ile Met Met
80 85 90

gtt gtc tac atc aca ggg ata agc atg ctc agt gcc atc agc act gag 460
Val Val Tyr Ile Thr Gly Ile Ser Met Leu Ser Ala Ile Ser Thr Glu
95 100 105

tgc tgc ctg tct gtc ctg tgc ccc acc tgg tat cgc tgc cac cgt cca 508
Cys Cys Leu Ser Val Leu Cys Pro Thr Trp Tyr Arg Cys His Arg Pro
110 115 120

gta cat aca tca act gtc atg tgt gct gtg atc tgg gtc cta tcc ctg 556
Val His Thr Ser Thr Val Met Cys Ala Val Ile Trp Val Leu Ser Leu
125 130 135 140

ttg atc tgc att ctg aat agc tat ttc tgt gct gtc tta cat acc aga 604
Leu Ile Cys Ile Leu Asn Ser Tyr Phe Cys Ala Val Leu His Thr Arg
145 150 155

tat gat aat gac aat gag tgt ctg gca act aac atc ttt acc gcc tcg 652
Tyr Asp Asn Asp Asn Glu Cys Leu Ala Thr Asn Ile Phe Thr Ala Ser
160 165 170

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tac atg ata ttt ttg ctt gtg gtc ctc tgt ctg tcc agc ctg gct ctg   700
Tyr Met Ile Phe Leu Leu Val Val Leu Cys Leu Ser Ser Leu Ala Leu
        175                 180                 185

ctg gcc agg ttg ttc tgt ggc gct ggg cag atg aag ctt acc aga ttt   748
Leu Ala Arg Leu Phe Cys Gly Ala Gly Gln Met Lys Leu Thr Arg Phe
    190                 195                 200

cat gtg acc atc ttg ctg acc ctt ttg gtt ttt ctc ctc tgc ggg ttg   796
His Val Thr Ile Leu Leu Thr Leu Leu Val Phe Leu Leu Cys Gly Leu
205                 210                 215                 220

ccc ttt gtc atc tac tgc atc ctg tta ttc aag att aag gat gat ttc   844
Pro Phe Val Ile Tyr Cys Ile Leu Leu Phe Lys Ile Lys Asp Asp Phe
                225                 230                 235

cat gta tta gat gtt aat ttt tat cta gca tta gaa gtc ctg act gct   892
His Val Leu Asp Val Asn Phe Tyr Leu Ala Leu Glu Val Leu Thr Ala
            240                 245                 250

att aac agc tgt gcc aac ccc atc atc tac ttc ttc gtg ggc tct ttc   940
Ile Asn Ser Cys Ala Asn Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe
        255                 260                 265

aga cat cag ttg aag cac cag acc ctc aaa atg gtt ctc cag agt gca   988
Arg His Gln Leu Lys His Gln Thr Leu Lys Met Val Leu Gln Ser Ala
    270                 275                 280

ctg cag gac act cct gag aca gct gaa aac atg gta gag atg tca agt   1036
Leu Gln Asp Thr Pro Glu Thr Ala Glu Asn Met Val Glu Met Ser Ser
285                 290                 295                 300

aac aaa gca gag cct tgatgaagag cctctacctg gacctcagag gtggctttgg   1091
Asn Lys Ala Glu Pro
                305

agtgagcact gccctgctgc acttgaccac tgtccactct tctctcagct tactgatttg 1151
acatgcctca gtggtccacc aacaacttca acatctctcc actaacttag tttttctacc 1211
cctcctgaat aaaagcatta atc                                         1234
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<212> PRT
<213> Mus musculus

<400> 4

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Lys Leu Met Ile Ile Ile Phe Gly Leu Val Gly Leu Met Gly Asn Ala
            20                  25                  30
Ile Val Phe Trp Leu Leu Gly Phe His Leu Arg Lys Asn Asp Phe Ser
        35                  40                  45
Leu Tyr Ile Leu Asn Leu Ala Arg Ala Asp Phe Leu Phe Leu Leu Ser
    50                  55                  60
Ser Ile Ile Ala Ser Thr Leu Phe Leu Leu Lys Val Ser Tyr Leu Ser
65                  70                  75                  80
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```
Ile Ile Phe His Leu Cys Phe Asn Thr Ile Met Met Val Val Tyr Ile
                85                  90                  95
Thr Gly Ile Ser Met Leu Ser Ala Ile Ser Thr Glu Cys Cys Leu Ser
            100                 105                 110
Val Leu Cys Pro Thr Trp Tyr Arg Cys His Arg Pro Val His Thr Ser
        115                 120                 125
Thr Val Met Cys Ala Val Ile Trp Val Leu Ser Leu Leu Ile Cys Ile
    130                 135                 140
Leu Asn Ser Tyr Phe Cys Ala Val Leu His Thr Arg Tyr Asp Asn Asp
145                 150                 155                 160
Asn Glu Cys Leu Ala Thr Asn Ile Phe Thr Ala Ser Tyr Met Ile Phe
                165                 170                 175
Leu Leu Val Val Leu Cys Leu Ser Ser Leu Ala Leu Leu Ala Arg Leu
            180                 185                 190
Phe Cys Gly Ala Gly Gln Met Lys Leu Thr Arg Phe His Val Thr Ile
        195                 200                 205
Leu Leu Thr Leu Leu Val Phe Leu Leu Cys Gly Leu Pro Phe Val Ile
    210                 215                 220
Tyr Cys Ile Leu Leu Phe Lys Ile Lys Asp Asp Phe His Val Leu Asp
225                 230                 235                 240
Val Asn Phe Tyr Leu Ala Leu Glu Val Leu Thr Ala Ile Asn Ser Cys
                245                 250                 255
Ala Asn Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg His Gln Leu
            260                 265                 270
Lys His Gln Thr Leu Lys Met Val Leu Gln Ser Ala Leu Gln Asp Thr
        275                 280                 285
Pro Glu Thr Ala Glu Asn Met Val Glu Met Ser Ser Asn Lys Ala Glu
    290                 295                 300
Pro
305
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<220>
<221> CDS
<222> (165)...(1070)

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gaaacacctc agcctcgaca atgacaccca caacaacaaa ttca atg aac gaa acc 176
                                                Met Asn Glu Thr
                                                 1

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atc cct gga agt att gac atc gag acc ctg atc cca gac ttg atg atc   224
Ile Pro Gly Ser Ile Asp Ile Glu Thr Leu Ile Pro Asp Leu Met Ile
 5                  10                  15                  20

atc atc ttc gga ctg gtc ggg ctg aca gga aat gcg att gtg ttc tgg   272
Ile Ile Phe Gly Leu Val Gly Leu Thr Gly Asn Ala Ile Val Phe Trp
                25                  30                  35

ctc ctt ggc ttc cgc atg cac agg act gcc ttc tta gtc tac atc cta   320
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Leu Leu Gly Phe Arg Met His Arg Thr Ala Phe Leu Val Tyr Ile Leu
            40                  45                  50

aac ttg gcc ctg gct gac ttc ctc ttc ctt ctc tgt cac atc ata aat   368
Asn Leu Ala Leu Ala Asp Phe Leu Phe Leu Leu Cys His Ile Ile Asn
        55                  60                  65

tcc aca gtg gat ctt ctc aag ttt acc cta ccc aaa gga att ttt gcc   416
Ser Thr Val Asp Leu Leu Lys Phe Thr Leu Pro Lys Gly Ile Phe Ala
    70                  75                  80

ttt tgt ttt cac act atc aaa agg gtt ctc tat atc aca ggc ctg agc   464
Phe Cys Phe His Thr Ile Lys Arg Val Leu Tyr Ile Thr Gly Leu Ser
85                  90                  95                  100

atg ctc agt gcc atc agc act gag cgc tgc ctg tct gtc ctg tgc ccc   512
Met Leu Ser Ala Ile Ser Thr Glu Arg Cys Leu Ser Val Leu Cys Pro
                105                 110                 115

atc tgg tat cac tgc cgc cgc cca gaa cac aca tca act gtc atg tgt   560
Ile Trp Tyr His Cys Arg Arg Pro Glu His Thr Ser Thr Val Met Cys
            120                 125                 130

gct gtg atc tgg gtc ctg tcc ctg ttg atc tgc att ctg gat ggt tat   608
Ala Val Ile Trp Val Leu Ser Leu Leu Ile Cys Ile Leu Asp Gly Tyr
        135                 140                 145

ttc tgc ggt tac tta gat aac cat tat ttc aat tac tct gtg tgt cag   656
Phe Cys Gly Tyr Leu Asp Asn His Tyr Phe Asn Tyr Ser Val Cys Gln
    150                 155                 160

gca tgg gac atc ttt atc gga gca tac ctg atg ttt ttg ttt gta gtc   704
Ala Trp Asp Ile Phe Ile Gly Ala Tyr Leu Met Phe Leu Phe Val Val
165                 170                 175                 180

ctc tgt ctg tcc acc ctg gct cta ctg gcc agg ttg ttc tgt ggt gct   752
Leu Cys Leu Ser Thr Leu Ala Leu Leu Ala Arg Leu Phe Cys Gly Ala
                185                 190                 195

agg aat atg aaa ttt acc aga tta ttc gtg acc atc atg ctg acc gtt   800
Arg Asn Met Lys Phe Thr Arg Leu Phe Val Thr Ile Met Leu Thr Val
            200                 205                 210

ttg gtt ttt ctt ctc tgt ggg ttg ccc tgg ggc atc acc tgg ttc ctg   848
Leu Val Phe Leu Leu Cys Gly Leu Pro Trp Gly Ile Thr Trp Phe Leu
        215                 220                 225

tta ttc tgg att gca cct ggt gtg ttt gta cta gat tat agc cct ctt   896
Leu Phe Trp Ile Ala Pro Gly Val Phe Val Leu Asp Tyr Ser Pro Leu
    230                 235                 240

ctg gtc cta act gct att aac agc tgt gcc aac ccc att att tac ttc   944
Leu Val Leu Thr Ala Ile Asn Ser Cys Ala Asn Pro Ile Ile Tyr Phe
245                 250                 255                 260

ttc gtg ggc tcc ttc agg caa cgg ttg aat aaa cag acc ctc aaa atg   992
Phe Val Gly Ser Phe Arg Gln Arg Leu Asn Lys Gln Thr Leu Lys Met
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                265                 270                 275

gtt ctc cag aaa gcc ctg cag gac act cct gag aca cct gaa aac atg   1040
Val Leu Gln Lys Ala Leu Gln Asp Thr Pro Glu Thr Pro Glu Asn Met
            280                 285                 290

gtg gag atg tca aga aac aaa gca gag ccg tgatgaagag cctctgccta     1090
Val Glu Met Ser Arg Asn Lys Ala Glu Pro
        295                 300

gacttcagag gtggatttgg agtgagcact gccctgctgc acttgaccac tgtccactct 1150
cctctcagct tactgacttg acatgcctca ctggtccacc aacaccttcc aaagctctcc 1210
actgacttag tatttatacc tctcccaaac aatagcatta ttcaaaaact ataatttctg 1270
catccttctt tacattaata aaattcccat actaagttca aa                    1312

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<212> PRT
<213> Mus musculus

<400> 6
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Asp Leu Met Ile Ile Ile Phe Gly Leu Val Gly Leu Thr Gly Asn Ala
            20                  25                  30
Ile Val Phe Trp Leu Leu Gly Phe Arg Met His Arg Thr Ala Phe Leu
        35                  40                  45
Val Tyr Ile Leu Asn Leu Ala Leu Ala Asp Phe Leu Phe Leu Leu Cys
    50                  55                  60
His Ile Ile Asn Ser Thr Val Asp Leu Leu Lys Phe Thr Leu Pro Lys
65                  70                  75                  80
Gly Ile Phe Ala Phe Cys Phe His Thr Ile Lys Arg Val Leu Tyr Ile
                85                  90                  95
Thr Gly Leu Ser Met Leu Ser Ala Ile Ser Thr Glu Arg Cys Leu Ser
            100                 105                 110
Val Leu Cys Pro Ile Trp Tyr His Cys Arg Arg Pro Glu His Thr Ser
        115                 120                 125
Thr Val Met Cys Ala Val Ile Trp Val Leu Ser Leu Leu Ile Cys Ile
    130                 135                 140
Leu Asp Gly Tyr Phe Cys Gly Tyr Leu Asp Asn His Tyr Phe Asn Tyr
145                 150                 155                 160
Ser Val Cys Gln Ala Trp Asp Ile Phe Ile Gly Ala Tyr Leu Met Phe
                165                 170                 175
Leu Phe Val Val Leu Cys Leu Ser Thr Leu Ala Leu Leu Ala Arg Leu
            180                 185                 190
Phe Cys Gly Ala Arg Asn Met Lys Phe Thr Arg Leu Phe Val Thr Ile
        195                 200                 205
Met Leu Thr Val Leu Val Phe Leu Leu Cys Gly Leu Pro Trp Gly Ile
    210                 215                 220
Thr Trp Phe Leu Leu Phe Trp Ile Ala Pro Gly Val Phe Val Leu Asp
225                 230                 235                 240
Tyr Ser Pro Leu Leu Val Leu Thr Ala Ile Asn Ser Cys Ala Asn Pro
                245                 250                 255
Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg Gln Arg Leu Asn Lys Gln
            260                 265                 270
Thr Leu Lys Met Val Leu Gln Lys Ala Leu Gln Asp Thr Pro Glu Thr
        275                 280                 285
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    290                 295                 300


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<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1)...(450)

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Leu Cys Arg Ile Trp Tyr His Cys Arg Arg Pro Glu His Thr Ser Thr
 1               5                  10                  15

gtc atg tgt gct gtc atc tgg gtc ctg tcc ctg ttg atc tgc att ctg   96
Val Met Cys Ala Val Ile Trp Val Leu Ser Leu Leu Ile Cys Ile Leu
            20                  25                  30

aat agt tat ttc tgc ggt ttc tta aat acc caa tat aaa aat gaa aat   144
Asn Ser Tyr Phe Cys Gly Phe Leu Asn Thr Gln Tyr Lys Asn Glu Asn
        35                  40                  45

ggg tgt ctg gca ttg agc ttc ttt act gct gca tac ctg atg ttt ttg   192
Gly Cys Leu Ala Leu Ser Phe Phe Thr Ala Ala Tyr Leu Met Phe Leu
    50                  55                  60

ttt gtg gtc ctc tgt ctg tcc agc ctg gct ctg gtg gcc agg ttg ttc   240
Phe Val Val Leu Cys Leu Ser Ser Leu Ala Leu Val Ala Arg Leu Phe
65                  70                  75                  80

tgt ggt gct agg aat atg aaa ttt acc aga tta ttc gtg acc atc atg   288
Cys Gly Ala Arg Asn Met Lys Phe Thr Arg Leu Phe Val Thr Ile Met
                85                  90                  95

ctg acc gtt ttg gtt ttt ctt ctc tgt ggg ttg ccc tgg ggc atc acc   336
Leu Thr Val Leu Val Phe Leu Leu Cys Gly Leu Pro Trp Gly Ile Thr
            100                 105                 110

tgg ttc ctg tta ttc tgg att gca cct ggt gtg ttt gta cta gat tat   384
Trp Phe Leu Leu Phe Trp Ile Ala Pro Gly Val Phe Val Leu Asp Tyr
        115                 120                 125

agc cct ctt ctg gtc cta act gct att aac agc tgt gcc aac ccc att   432
Ser Pro Leu Leu Val Leu Thr Ala Ile Asn Ser Cys Ala Asn Pro Ile
    130                 135                 140

att tac ttc ttc gtc ggc                                         450
Ile Tyr Phe Phe Val Gly
145                 150


<210> 8
<211> 150
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<212> PRT
<213> Mus musculus

<400> 8
Leu Cys Arg Ile Trp Tyr His Cys Arg Arg Pro Glu His Thr Ser Thr
 1   5   10   15
Val Met Cys Ala Val Ile Trp Val Leu Ser Leu Leu Ile Cys Ile Leu
            20   25   30
Asn Ser Tyr Phe Cys Gly Phe Leu Asn Thr Gln Tyr Lys Asn Glu Asn
        35   40   45
Gly Cys Leu Ala Leu Ser Phe Phe Thr Ala Ala Tyr Leu Met Phe Leu
    50   55   60
Phe Val Val Leu Cys Leu Ser Ser Leu Ala Leu Val Ala Arg Leu Phe
65   70   75   80
Cys Gly Ala Arg Asn Met Lys Phe Thr Arg Leu Phe Val Thr Ile Met
                85   90   95
Leu Thr Val Leu Val Phe Leu Leu Cys Gly Leu Pro Trp Gly Ile Thr
            100   105   110
Trp Phe Leu Leu Phe Trp Ile Ala Pro Gly Val Phe Val Leu Asp Tyr
        115   120   125
Ser Pro Leu Leu Val Leu Thr Ala Ile Asn Ser Cys Ala Asn Pro Ile
    130   135   140
Ile Tyr Phe Phe Val Gly
145   150

<210> 9
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<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1)...(459)

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Leu Cys Pro Thr Trp Tyr Arg Cys His Arg Pro Val His Thr Ser Thr
 1   5   10   15

gtc atg tgt gct gtg atc tgg gtc cta tcc ctg ttg atc tgc att ctg   96
Val Met Cys Ala Val Ile Trp Val Leu Ser Leu Leu Ile Cys Ile Leu
            20   25   30

aat agc tat ttc tgt gct gtc tta cat acc aga tat gat aat gac aat   144
Asn Ser Tyr Phe Cys Ala Val Leu His Thr Arg Tyr Asp Asn Asp Asn
        35   40   45

gag tgt ctg gca act aac atc ttt acc gcc tcg tac atg ata ttt ttg   192
Glu Cys Leu Ala Thr Asn Ile Phe Thr Ala Ser Tyr Met Ile Phe Leu
    50   55   60

ctt gtg gtc ctc tgt ctg tcc agc ctg gct ctg ctg gcc agg ttg ttc   240
Leu Val Val Leu Cys Leu Ser Ser Leu Ala Leu Leu Ala Arg Leu Phe
65   70   75   80

tgt ggc gct ggg cag atg aag ctt acc aga ttt cat gtg acc atc ttg   288

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Cys Gly Ala Gly Gln Met Lys Leu Thr Arg Phe His Val Thr Ile Leu
                 85                  90                  95

ctg acc ctt ttg gtt ttt ctc ctc tgc ggg ttg ccc ttt gtc atc tac   336
Leu Thr Leu Leu Val Phe Leu Leu Cys Gly Leu Pro Phe Val Ile Tyr
            100                 105                 110

tgc atc ctg tta ttc aag att aag gat gat ttc cat gta tta gat gtt   384
Cys Ile Leu Leu Phe Lys Ile Lys Asp Asp Phe His Val Leu Asp Val
        115                 120                 125

aat ctt tat cta gca tta gaa gtc ctg act gct att aac agc tgt gcc   432
Asn Leu Tyr Leu Ala Leu Glu Val Leu Thr Ala Ile Asn Ser Cys Ala
    130                 135                 140

aac ccc atc atc tac ttc ttc gtc gga                              459
Asn Pro Ile Ile Tyr Phe Phe Val Gly
145                 150
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<210> 10
<211> 153
<212> PRT
<213> Mus musculus

<400> 10

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Leu Cys Pro Thr Trp Tyr Arg Cys His Arg Pro Val His Thr Ser Thr
 1               5                  10                  15
Val Met Cys Ala Val Ile Trp Val Leu Ser Leu Leu Ile Cys Ile Leu
            20                  25                  30
Asn Ser Tyr Phe Cys Ala Val Leu His Thr Arg Tyr Asp Asn Asp Asn
        35                  40                  45
Glu Cys Leu Ala Thr Asn Ile Phe Thr Ala Ser Tyr Met Ile Phe Leu
    50                  55                  60
Leu Val Val Leu Cys Leu Ser Ser Leu Ala Leu Leu Ala Arg Leu Phe
65                  70                  75                  80
Cys Gly Ala Gly Gln Met Lys Leu Thr Arg Phe His Val Thr Ile Leu
                85                  90                  95
Leu Thr Leu Leu Val Phe Leu Leu Cys Gly Leu Pro Phe Val Ile Tyr
            100                 105                 110
Cys Ile Leu Leu Phe Lys Ile Lys Asp Asp Phe His Val Leu Asp Val
        115                 120                 125
Asn Leu Tyr Leu Ala Leu Glu Val Leu Thr Ala Ile Asn Ser Cys Ala
    130                 135                 140
Asn Pro Ile Ile Tyr Phe Phe Val Gly
145                 150
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<210> 11
<211> 2853
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1820)...(2734)

<400> 11
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aagttagtgg ttcaatataa cagacaaata catcatgccc tgaaattagc tttgaacaat 120
gctaagccca taatgggaag taaaagattt gcttggttcc cactttcttc cttttctatt 180
ccgtttggac catagtggct agtgtctctt acaagatcac aagaaggagg ctctgcattt 240
atttctgagt gcctgtctgc atcctccttt ggcctggagg tcctctatga aatcctgaag 300
taagaaagaa atgttccaga ctctgatttt tcttcctaga ccaatgctat tcccttccat 360
gttgccaaca acttctcatc actctttctg tactttcttt tagctgggtg gtttcttaat 420
ctacagtatt gactgtcatg tcaaagttgg gtatttttg gctttagata tttcttctct 480
ggcttttctc ccatccacac ataatcaaaa cactgaggtg atgacactaa gggactgctc 540
aaaggaaaag ggtgggttcc tgggctttgg ggttattaat aatttgcctg tcctctgcca 600
gcctctatca actcccctaa aacacaaaaa taattgttcc tagcaggcaa gcacgacctg 660
acaattaatt aatgatcata aaaagtgcat tataaacatc tgaaaacctc ataataaaac 720
tcaacacctt atacagtgag tatgttgtgg ggtctgcata aatccaacaa aactccaatg 780
gagtggtact cagctattaa aaatgaggaa ttcacgaaat tcttagccaa atgattagaa 840
gtagaaaata tgatcctgag tgagaaaaga acaggcttgg tatgtactca ctgataagtg 900
gatactagcc caaaagctgc aaataatcag gataaaattc acagaccaca tgaacctcaa 960
taagaaggaa gaccaaagta tgggcgtttc ggtccttctt agaaggagaa caaaatactc 1020
ccaagagcaa atatggagat aaagtgtaga acaggcacta aaggaaaagt cacccagaga 1080
atgttccacc tggggattca tcccatatac agttaccaaa cccagacact cttatggatg 1140
ccaaggagtg aatgctgaca tagctgtttc ctaagaggcc atgccagaca cttacaaata 1200
cagaggccca agttagcaac caaccattag actgagcaca gggttcctaa tagaggagtc 1260
agagaaagga ctgagggagt tgaaggggtt tgcatcccca taagaaaaac aacaacatga 1320
accaacaaga cactctcccc accaaccccc tgaactccta gggactaagc catcaacaaa 1380
agagtacaca tggctccaga tgcatatgtt gcagaggatg gccatatcat gcattgatgg 1440
aagaggtcct tgaacctatg aaggttctat tgatgcccca gtgtaaggga atcgagggca 1500
gagaggtgga agtgggtgtg tgggttgagc aacaccctca cagaagcagg gggagggagg 1560
atgagatggg ggtttccagg aaggggggaa gcaggaaagg ggataacatt ttaaatttaa 1620
atatagaaaa tatccaatac aaaacatttt gaacaaacaa caaaaaactc acaaaaacaa 1680
caacaacaaa aaaaagaaat taaaagttgt gttcatagtg aaggcctcat ttcttctttg 1740
tgttcccagc aacaccagtg cagggtttct ggccctaaac acctcagcct cggcaatggc 1800
acccacaaca acaaatcca atg aac gaa acc atc cct gga agt att gac atc 1852
Met Asn Glu Thr Ile Pro Gly Ser Ile Asp Ile
1 5 10

gag acc ctg atc cca aac ttg atg atc atc atc ttc gga ctg gtc ggg 1900
Glu Thr Leu Ile Pro Asn Leu Met Ile Ile Ile Phe Gly Leu Val Gly
15 20 25

ctg aca gga aat gtc att ttg ttt tgg ctc ctg ggc ttc cac ttg cac 1948
Leu Thr Gly Asn Val Ile Leu Phe Trp Leu Leu Gly Phe His Leu His
30 35 40

agg aat gcc ttc tta gtc tac atc cta aac ttg gcc ctg gct gac ttc 1996
Arg Asn Ala Phe Leu Val Tyr Ile Leu Asn Leu Ala Leu Ala Asp Phe
45 50 55

ctc ttc ctt ctc tgt cac atc ata aat tcc aca atg ctt ctt ctc aag 2044
Leu Phe Leu Leu Cys His Ile Ile Asn Ser Thr Met Leu Leu Leu Lys
60 65 70 75

gtt cac cta ccc aac aat att ttg aac cat tgc ttt gac atc atc atg 2092
Val His Leu Pro Asn Asn Ile Leu Asn His Cys Phe Asp Ile Ile Met
80 85 90

aca gtt ctc tac atc aca ggc ctg agc atg ctc agt gcc atc agc act 2140
Thr Val Leu Tyr Ile Thr Gly Leu Ser Met Leu Ser Ala Ile Ser Thr

```
            95                  100                 105

gag cgc tgc ctg tct gtc ctg tgc ccc atc tgg tat cgg tgc cgc cgc   2188
Glu Arg Cys Leu Ser Val Leu Cys Pro Ile Trp Tyr Arg Cys Arg Arg
        110                 115                 120

cca gaa cac aca tca act gtc ctg tgt gct gtg atc tgg ttc ctg ccc   2236
Pro Glu His Thr Ser Thr Val Leu Cys Ala Val Ile Trp Phe Leu Pro
    125                 130                 135

ctg ttg atc tgc att ctg aat gga tat ttc tgt cat ttc ttt ggt ccc   2284
Leu Leu Ile Cys Ile Leu Asn Gly Tyr Phe Cys His Phe Phe Gly Pro
140                 145                 150                 155

aaa tat gta att gac tct gtg tgt ctg gca acg aac ttc ttt atc aga   2332
Lys Tyr Val Ile Asp Ser Val Cys Leu Ala Thr Asn Phe Phe Ile Arg
                160                 165                 170

aca tac ccg atg ttt ttg ttt ata gtc ctc tgt ctg tcc acc ctg gct   2380
Thr Tyr Pro Met Phe Leu Phe Ile Val Leu Cys Leu Ser Thr Leu Ala
            175                 180                 185

ctg ctg gcc agg ttg ttc tgt ggt ggt ggg aag acg aaa ttt acc aga   2428
Leu Leu Ala Arg Leu Phe Cys Gly Gly Gly Lys Thr Lys Phe Thr Arg
        190                 195                 200

tta ttc gtg acc atc atg ctg acc gtt ttg gtt ttt ctt ctc tgt ggg   2476
Leu Phe Val Thr Ile Met Leu Thr Val Leu Val Phe Leu Leu Cys Gly
    205                 210                 215

ttg ccc ctg ggc ttc ttc tgg ttt ctg gtg ccg tgg att aac cgt gat   2524
Leu Pro Leu Gly Phe Phe Trp Phe Leu Val Pro Trp Ile Asn Arg Asp
220                 225                 230                 235

ttc agt gta cta gat tat ata ctt ttt cag aca tca ctt gtc cta act   2572
Phe Ser Val Leu Asp Tyr Ile Leu Phe Gln Thr Ser Leu Val Leu Thr
                240                 245                 250

tct gtt aac agc tgt gcc aac ccc atc att tac ttc ttt gtg ggc tcc   2620
Ser Val Asn Ser Cys Ala Asn Pro Ile Ile Tyr Phe Phe Val Gly Ser
            255                 260                 265

ttc agg cat cgg ttg aag cac aag acc ctc aaa atg gtt ctc cag agt   2668
Phe Arg His Arg Leu Lys His Lys Thr Leu Lys Met Val Leu Gln Ser
        270                 275                 280

gca ttg cag gac act cct gag aca cct gaa aac atg gtg gag atg tca   2716
Ala Leu Gln Asp Thr Pro Glu Thr Pro Glu Asn Met Val Glu Met Ser
    285                 290                 295

aga agc aaa gca gag ccg tgatgaagag cctctacctg gacctcagag          2764
Arg Ser Lys Ala Glu Pro
300                 305

gtggctttgg attgagcact gccctgctgc acttgaccac tgtccactct cctctcagct 2824
tactgacttt ggatgcctca gtggtccaa                                   2853
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<211> 305
<212> PRT
<213> Mus musculus

<400> 12
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 1   5   10   15
Asn Leu Met Ile Ile Ile Phe Gly Leu Val Gly Leu Thr Gly Asn Val
            20   25   30
Ile Leu Phe Trp Leu Leu Gly Phe His Leu His Arg Asn Ala Phe Leu
        35   40   45
Val Tyr Ile Leu Asn Leu Ala Leu Ala Asp Phe Leu Phe Leu Leu Cys
    50   55   60
His Ile Ile Asn Ser Thr Met Leu Leu Leu Lys Val His Leu Pro Asn
65   70   75   80
Asn Ile Leu Asn His Cys Phe Asp Ile Ile Met Thr Val Leu Tyr Ile
                85   90   95
Thr Gly Leu Ser Met Leu Ser Ala Ile Ser Thr Glu Arg Cys Leu Ser
            100   105   110
Val Leu Cys Pro Ile Trp Tyr Arg Cys Arg Arg Pro Glu His Thr Ser
        115   120   125
Thr Val Leu Cys Ala Val Ile Trp Phe Leu Pro Leu Leu Ile Cys Ile
    130   135   140
Leu Asn Gly Tyr Phe Cys His Phe Phe Gly Pro Lys Tyr Val Ile Asp
145   150   155   160
Ser Val Cys Leu Ala Thr Asn Phe Phe Ile Arg Thr Tyr Pro Met Phe
                165   170   175
Leu Phe Ile Val Leu Cys Leu Ser Thr Leu Ala Leu Leu Ala Arg Leu
            180   185   190
Phe Cys Gly Gly Gly Lys Thr Lys Phe Thr Arg Leu Phe Val Thr Ile
        195   200   205
Met Leu Thr Val Leu Val Phe Leu Leu Cys Gly Leu Pro Leu Gly Phe
    210   215   220
Phe Trp Phe Leu Val Pro Trp Ile Asn Arg Asp Phe Ser Val Leu Asp
225   230   235   240
Tyr Ile Leu Phe Gln Thr Ser Leu Val Leu Thr Ser Val Asn Ser Cys
                245   250   255
Ala Asn Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg His Arg Leu
            260   265   270
Lys His Lys Thr Leu Lys Met Val Leu Gln Ser Ala Leu Gln Asp Thr
        275   280   285
Pro Glu Thr Pro Glu Asn Met Val Glu Met Ser Arg Ser Lys Ala Glu
    290   295   300
Pro
305

<210> 13
<211> 3391
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (170)...(574)

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cagaaactca ttgccagctt cctccctacg cgagagccga ctgagtccca ggtccccagt 120
cttcccccgg gacgttgtgc acggtgccca ttcttgagca gccacaaca atg gag gtg 178
                                                    Met Glu Val
                                                     1

ctc ccc aag gcc ctg gag gta gac gag agg tct cca gag tcc aag gac 226
Leu Pro Lys Ala Leu Glu Val Asp Glu Arg Ser Pro Glu Ser Lys Asp
 5   10   15

ctg ctg ccc agc cag aca gcc agc tcc ctg tgc atc agt tcc aga agt 274
Leu Leu Pro Ser Gln Thr Ala Ser Ser Leu Cys Ile Ser Ser Arg Ser
20   25   30   35

gag tct gtc tgg acc acc aca ccc aaa agc aac tgg gaa atc tac cac 322
Glu Ser Val Trp Thr Thr Thr Pro Lys Ser Asn Trp Glu Ile Tyr His
                40   45   50

aag ccc atc atc atc atg tca gtg gga gct gcc att ctg ctc ttt ggc 370
Lys Pro Ile Ile Ile Met Ser Val Gly Ala Ala Ile Leu Leu Phe Gly
            55   60   65

gtg gcc atc acc tgt gtg gcc tac atc ttg gaa gag aag cat aaa gtt 418
Val Ala Ile Thr Cys Val Ala Tyr Ile Leu Glu Glu Lys His Lys Val
        70   75   80

gtg caa gtg ctc agg atg ata ggg cct gcc ttc ctg tcc ctg gga ctc 466
Val Gln Val Leu Arg Met Ile Gly Pro Ala Phe Leu Ser Leu Gly Leu
 85   90   95

atg atg ctg gtg tgt ggg ctg gtg tgg gtc ccc ata atc aaa aag aag 514
Met Met Leu Val Cys Gly Leu Val Trp Val Pro Ile Ile Lys Lys Lys
100   105   110   115

cag aag caa agg cag aag tcc aac ttc ttc caa agc ctc aag ttc ttc 562
Gln Lys Gln Arg Gln Lys Ser Asn Phe Phe Gln Ser Leu Lys Phe Phe
                120   125   130

ctc ctg aac cgc tgatgactgg ttgtccagaa gatctgctaa ccaataagca   614
Leu Leu Asn Arg
            135

gcctcctacc ttctcttcgg gtaccacaaa gttgatccag gcaaaccctc ctcttggccc 674
tgtggacagg atagagctca gggcttcacc ctcatacaac ctagcagcat tgctgactga 734
gtctcacctg gtttccatag ctgtggatgc tgtgcccttg gatactttca ttaccctcat 794
ccctggcacc tgcattcagc catcagccat cccattctct ctgccaaggg caatgtgtgc 854
atgctaggaa attctttggg ggttgactac attcccaagg agaacttgta tgttacggtt 914
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aaggctgact tcagtcccat tgggtttgac agccttggct ccctccttgg atgggacatt 1034
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acatctctgc gtctacacag ctccagaaca gaaggacggg aggccacaga tgtgacctgt 1394
aagatcatct ccttctcctg tcaatcaaga cctaacctga aattgaatgc catgtccgac 1454

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tcacgctgca tggggtttta gagataggtt cactggaaaa aaggaaatct cagcctccct 1514
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cgttgggaac agccagaccc agtctctgat gtcatcttat ttccaaaagt gaaagaggga 1634
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cacatggatc taacaaatgt acaggaagat agatttctgg agaccatgtt caccccttct 1754
gaatatgaag gggaaggaag tgtttggaat gagcaagatg tgcaaggtag tcagcaactg 1814
ccttgcatgt ggagaagcta aggggaaaga gacagggtgg ggttaggatt ccgcatagct 1874
cccggatgct attccatcct ctcttgccta cttccccccc gcttccccag gtaccttaca 1934
tccagctact ccttggtaca ctgcaggctt ctggggtcaa tagggactgg gaggggcatc 1994
tccagagggc ctaacaagta gatataaccc aagaggtaag taccctcaaa acttcattat 2054
agtcaccaag acacctttag gcaaaagacc gggcacctat aagaaatttc caaagctgtt 2114
ccaggcaagg ccaggccaga gagcagagga aggtacctag tagcaaagtg aatgacaaga 2174
gctgcattgg ttcaggttga ctcttcatcc ttaacctttg ggcatttggg aacactatgg 2234
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tttgtggaat caacacacac acacacacgc acagagagag agagagagag agagagagag 2414
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ccaaactccc cacaaaagtg atagtcagga agtgagcaga gtcacaccca acatcttgga 3134
aaattttgcc aaagaccatt gcctcatgaa aactggggtg gggataacct gtgagtgcag 3194
ccgggttgga tgccgtgtct ctgcaacaaa gcattctggg tagtgatttc agtcatctca 3254
gaagacaaga gcaacatcca cagcaccatc ccaccggact gtattacggg cttctgtcgc 3314
tcttctgttt tggagaattt aatctaaccc aacgcctaat ggaatcaatg tcgtattgaa 3374
ctgtattctg tttaaaa                                              3391
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<210> 14
<211> 135
<212> PRT
<213> Mus musculus

<400> 14

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Met Glu Val Leu Pro Lys Ala Leu Glu Val Asp Glu Arg Ser Pro Glu
 1               5                  10                  15
Ser Lys Asp Leu Leu Pro Ser Gln Thr Ala Ser Ser Leu Cys Ile Ser
            20                  25                  30
Ser Arg Ser Glu Ser Val Trp Thr Thr Thr Pro Lys Ser Asn Trp Glu
        35                  40                  45
Ile Tyr His Lys Pro Ile Ile Ile Met Ser Val Gly Ala Ala Ile Leu
    50                  55                  60
Leu Phe Gly Val Ala Ile Thr Cys Val Ala Tyr Ile Leu Glu Glu Lys
65                  70                  75                  80
His Lys Val Val Gln Val Leu Arg Met Ile Gly Pro Ala Phe Leu Ser
                85                  90                  95
Leu Gly Leu Met Met Leu Val Cys Gly Leu Val Trp Val Pro Ile Ile
            100                 105                 110
Lys Lys Lys Gln Lys Gln Arg Gln Lys Ser Asn Phe Phe Gln Ser Leu
        115                 120                 125
Lys Phe Phe Leu Leu Asn Arg
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130 135

<210> 15
<211> 2040
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (328)...(1293)

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cagagtcagc aagaactgga tttcaaactg gatttgagga cccccacctt ttgataggtg 180
acttattctc tgtgagtctc tgatctgccc tctttaaatg aggaagtaaa tcccacatgg 240
cagggtggtg gggagaatca gagatcatac agctggtgat cacaactggt ttctgtttcc 300
agggtcacca gactagggtt tctgagc atg gat cca acc atc tca acc ttg gac 354
Met Asp Pro Thr Ile Ser Thr Leu Asp
1 5

aca gaa ctg aca cca atc aac gga act gag gag act ctt tgc tac aag 402
Thr Glu Leu Thr Pro Ile Asn Gly Thr Glu Glu Thr Leu Cys Tyr Lys
10 15 20 25

cag acc ttg agc ctc acg gtg ctg acg tgc atc gtt tcc ctt gtc ggg 450
Gln Thr Leu Ser Leu Thr Val Leu Thr Cys Ile Val Ser Leu Val Gly
30 35 40

ctg aca gga aac gca gtt gtg ctc tgg ctc ctg ggc tgc cgc atg cgc 498
Leu Thr Gly Asn Ala Val Val Leu Trp Leu Leu Gly Cys Arg Met Arg
45 50 55

agg aac gcc ttc tcc atc tac atc ctc aac ttg gcc gca gca gac ttc 546
Arg Asn Ala Phe Ser Ile Tyr Ile Leu Asn Leu Ala Ala Ala Asp Phe
60 65 70

ctc ttc ctc agc ggc cgc ctt ata tat tcc ctg tta agc ttc atc agt 594
Leu Phe Leu Ser Gly Arg Leu Ile Tyr Ser Leu Leu Ser Phe Ile Ser
75 80 85

atc ccc cat acc atc tct aaa atc ctc tat cct gtg atg atg ttt tcc 642
Ile Pro His Thr Ile Ser Lys Ile Leu Tyr Pro Val Met Met Phe Ser
90 95 100 105

tac ttt gca ggc ctg agc ttt ctg agt gcc gtg agc acc gag cgc tgc 690
Tyr Phe Ala Gly Leu Ser Phe Leu Ser Ala Val Ser Thr Glu Arg Cys
110 115 120

ctg tcc gtc ctg tgg ccc atc tgg tac cgc tgc cac cgc ccc aca cac 738
Leu Ser Val Leu Trp Pro Ile Trp Tyr Arg Cys His Arg Pro Thr His
125 130 135

ctg tca gcg gtg gtg tgt gtc ctg ctc tgg gcc ctg tcc ctg ctg cgg 786
Leu Ser Ala Val Val Cys Val Leu Leu Trp Ala Leu Ser Leu Leu Arg
140 145 150

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agc atc ctg gag tgg atg tta tgt ggc ttc ctg ttc agt ggt gct gat   834
Ser Ile Leu Glu Trp Met Leu Cys Gly Phe Leu Phe Ser Gly Ala Asp
    155                 160                 165

tct gct tgg tgt caa aca tca gat ttc atc aca gtc gcg tgg ctg att   882
Ser Ala Trp Cys Gln Thr Ser Asp Phe Ile Thr Val Ala Trp Leu Ile
170                 175                 180                 185

ttt tta tgt gtg gtt ctc tgt ggg tcc agc ctg gtc ctg ctg atc agg   930
Phe Leu Cys Val Val Leu Cys Gly Ser Ser Leu Val Leu Leu Ile Arg
                190                 195                 200

att ctc tgt gga tcc cgg aag ata ccg ctg acc agg ctg tac gtg acc   978
Ile Leu Cys Gly Ser Arg Lys Ile Pro Leu Thr Arg Leu Tyr Val Thr
            205                 210                 215

atc ctg ctc aca gta ctg gtc ttc ctc ctc tgt ggc ctg ccc ttt ggc   1026
Ile Leu Leu Thr Val Leu Val Phe Leu Leu Cys Gly Leu Pro Phe Gly
        220                 225                 230

att cag ttt ttc cta ttt tta tgg atc cac gtg gac agg gaa gtc tta   1074
Ile Gln Phe Phe Leu Phe Leu Trp Ile His Val Asp Arg Glu Val Leu
    235                 240                 245

ttt tgt cat gtt cat cta gtt tct att ttc ctg tcc gct ctt aac agc   1122
Phe Cys His Val His Leu Val Ser Ile Phe Leu Ser Ala Leu Asn Ser
250                 255                 260                 265

agt gcc aac ccc atc att tac ttc ttc gtg ggc tcc ttt agg cag cgt   1170
Ser Ala Asn Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg Gln Arg
                270                 275                 280

caa aat agg cag aac ctg aag ctg gtt ctc cag agg gct ctg cag gac   1218
Gln Asn Arg Gln Asn Leu Lys Leu Val Leu Gln Arg Ala Leu Gln Asp
            285                 290                 295

gcg tct gag gtg gat gaa ggt gga ggg cag ctt cct gag gaa atc ctg   1266
Ala Ser Glu Val Asp Glu Gly Gly Gly Gln Leu Pro Glu Glu Ile Leu
        300                 305                 310

gag ctg tcg gga agc aga ttg gag cag tgaggaagag cctctgccct         1313
Glu Leu Ser Gly Ser Arg Leu Glu Gln
    315                 320

gtcagacagg actttgagag caacactgcc ctgccaccct tgacaattat atgcgttttt 1373
cttagccttc tgcctcagaa atgtctcagt ggttcctcaa ggtcttcaaa tagatgttta 1433
tctaacctga cagttgcggt tttcacccat ggaaagcatt agtctgacag tacaatgttt 1493
agattctcct tgatattacc aacacatttt ccctgttatc tcacactgaa tctttcctac 1553
agaacacttt ttctgcaatt ttctttgtaa taaaaggagt tcctgtacaa aaccctaaaa 1613
cactctttat acttctttcc tacctgatag catcaaaaag gaagattcct tattaatctc 1673
tcagactatg ttcccctgaa aatcatgttc ccttctatga ctggaggcat tactgcagtt 1733
agaagctcga ttcttaataa gtgagttctg ctatctctac attccattga attctcagat 1793
acagagcaaa ataatgtcct tagagacaga ctctctcttc ataaaaacac tctcacctat 1853
tggttttata aaaagtcttc ccctgtcatt tgttcacagc atggtgatat gttggccttg 1913
gtttctagta aagacaactg tggccccttc cccttgagaa cttttaagtg cttatttagc 1973
tcttcctgga ctaatggacc agtgaggagc ccataaatgt gccccagttc tattttggcc 2033
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attggaa 2040

<210> 16
<211> 322
<212> PRT
<213> Homo sapiens

<400> 16
Met Asp Pro Thr Ile Ser Thr Leu Asp Thr Glu Leu Thr Pro Ile Asn
 1   5   10   15
Gly Thr Glu Glu Thr Leu Cys Tyr Lys Gln Thr Leu Ser Leu Thr Val
            20   25   30
Leu Thr Cys Ile Val Ser Leu Val Gly Leu Thr Gly Asn Ala Val Val
        35   40   45
Leu Trp Leu Leu Gly Cys Arg Met Arg Arg Asn Ala Phe Ser Ile Tyr
    50   55   60
Ile Leu Asn Leu Ala Ala Ala Asp Phe Leu Phe Leu Ser Gly Arg Leu
65   70   75   80
Ile Tyr Ser Leu Leu Ser Phe Ile Ser Ile Pro His Thr Ile Ser Lys
                85   90   95
Ile Leu Tyr Pro Val Met Met Phe Ser Tyr Phe Ala Gly Leu Ser Phe
            100   105   110
Leu Ser Ala Val Ser Thr Glu Arg Cys Leu Ser Val Leu Trp Pro Ile
        115   120   125
Trp Tyr Arg Cys His Arg Pro Thr His Leu Ser Ala Val Val Cys Val
    130   135   140
Leu Leu Trp Ala Leu Ser Leu Leu Arg Ser Ile Leu Glu Trp Met Leu
145   150   155   160
Cys Gly Phe Leu Phe Ser Gly Ala Asp Ser Ala Trp Cys Gln Thr Ser
                165   170   175
Asp Phe Ile Thr Val Ala Trp Leu Ile Phe Leu Cys Val Val Leu Cys
            180   185   190
Gly Ser Ser Leu Val Leu Leu Ile Arg Ile Leu Cys Gly Ser Arg Lys
        195   200   205
Ile Pro Leu Thr Arg Leu Tyr Val Thr Ile Leu Leu Thr Val Leu Val
    210   215   220
Phe Leu Leu Cys Gly Leu Pro Phe Gly Ile Gln Phe Phe Leu Phe Leu
225   230   235   240
Trp Ile His Val Asp Arg Glu Val Leu Phe Cys His Val His Leu Val
                245   250   255
Ser Ile Phe Leu Ser Ala Leu Asn Ser Ser Ala Asn Pro Ile Ile Tyr
            260   265   270
Phe Phe Val Gly Ser Phe Arg Gln Arg Gln Asn Arg Gln Asn Leu Lys
        275   280   285
Leu Val Leu Gln Arg Ala Leu Gln Asp Ala Ser Glu Val Asp Glu Gly
    290   295   300
Gly Gly Gln Leu Pro Glu Glu Ile Leu Glu Leu Ser Gly Ser Arg Leu
305   310   315   320
Glu Gln

<210> 17
<211> 1300
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (171)...(1160)

<400> 17
tccctggccc ttaataaatg acttaatctc ttcaagcctc tgatttcctc tcctgtaaaa 60
caggggcggt aattaccaca taacaggctg gtcatgaaaa tcagtgaaca tgcagcaggt 120
gctcaagtct tgtttttgtt tccaggggca ccagtggagg ttttctgagc atg gat 176
Met Asp
1

cca acc acc ccg gcc tgg gga aca gaa agt aca aca gtg aat gga aat 224
Pro Thr Thr Pro Ala Trp Gly Thr Glu Ser Thr Thr Val Asn Gly Asn
5 10 15

gac caa gcc ctt ctt ctg ctt tgt ggc aag gag acc ctg atc ccg gtc 272
Asp Gln Ala Leu Leu Leu Leu Cys Gly Lys Glu Thr Leu Ile Pro Val
20 25 30

ttc ctg atc ctt ttc att gcc ctg gtc ggg ctg gta gga aac ggg ttt 320
Phe Leu Ile Leu Phe Ile Ala Leu Val Gly Leu Val Gly Asn Gly Phe
35 40 45 50

gtg ctc tgg ctc ctg ggc ttc cgc atg cgc agg aac gcc ttc tct gtc 368
Val Leu Trp Leu Leu Gly Phe Arg Met Arg Arg Asn Ala Phe Ser Val
55 60 65

tac gtc ctc agc ctg gcc ggg gcc gac ttc ctc ttc ctc tgc ttc cag 416
Tyr Val Leu Ser Leu Ala Gly Ala Asp Phe Leu Phe Leu Cys Phe Gln
70 75 80

att ata aat tgc ctg gtg tac ctc agt aac ttc ttc tgt tcc atc tcc 464
Ile Ile Asn Cys Leu Val Tyr Leu Ser Asn Phe Phe Cys Ser Ile Ser
85 90 95

atc aat ttc cct agc ttc ttc acc act gtg atg acc tgt gcc tac ctt 512
Ile Asn Phe Pro Ser Phe Phe Thr Thr Val Met Thr Cys Ala Tyr Leu
100 105 110

gca ggc ctg agc atg ctg agc acc gtc agc acc gag cgc tgc ctg tcc 560
Ala Gly Leu Ser Met Leu Ser Thr Val Ser Thr Glu Arg Cys Leu Ser
115 120 125 130

gtc ctg tgg ccc atc tgg tat cgc tgc cgc cgc ccc aga cac ctg tca 608
Val Leu Trp Pro Ile Trp Tyr Arg Cys Arg Arg Pro Arg His Leu Ser
135 140 145

gcg gtc gtg tgt gtc ctg ctc tgg gcc ctg tcc cta ctg ctg agc atc 656
Ala Val Val Cys Val Leu Leu Trp Ala Leu Ser Leu Leu Leu Ser Ile
150 155 160

ttg gaa ggg aag ttc tgt ggc ttc tta ttt agt gat ggt gac tct ggt 704
Leu Glu Gly Lys Phe Cys Gly Phe Leu Phe Ser Asp Gly Asp Ser Gly
165 170 175

tgg tgt cag aca ttt gat ttc atc act gca gcg tgg ctg att ttt tta 752
Trp Cys Gln Thr Phe Asp Phe Ile Thr Ala Ala Trp Leu Ile Phe Leu

```
    180                 185                 190

ttc atg gtt ctc tgt ggg tcc agt ctg gcc ctg ctg gtc agg atc ctc   800
Phe Met Val Leu Cys Gly Ser Ser Leu Ala Leu Leu Val Arg Ile Leu
195                 200                 205                 210

tgt ggc tcc agg ggt ctg cca ctg acc agg ctg tac ctg acc atc ctg   848
Cys Gly Ser Arg Gly Leu Pro Leu Thr Arg Leu Tyr Leu Thr Ile Leu
                215                 220                 225

ctc aca gtg ctg gtg ttc ctc ctc tgc ggc ctg ccc ttt ggc att cag   896
Leu Thr Val Leu Val Phe Leu Leu Cys Gly Leu Pro Phe Gly Ile Gln
            230                 235                 240

tgg ttc cta ata tta tgg atc tgg aag gat tct gat gtc tta ttt tgt   944
Trp Phe Leu Ile Leu Trp Ile Trp Lys Asp Ser Asp Val Leu Phe Cys
        245                 250                 255

cat att cat cca gtt tca gtt gtc ctg tca tct ctt aac agc agt gcc   992
His Ile His Pro Val Ser Val Val Leu Ser Ser Leu Asn Ser Ser Ala
    260                 265                 270

aac ccc atc att tac ttc ttc gtg ggc tct ttt agg aag cag tgg cgg   1040
Asn Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg Lys Gln Trp Arg
275                 280                 285                 290

ctg cag cag ccg atc ctc aag ctg gct ctc cag agg gct ctg cag gac   1088
Leu Gln Gln Pro Ile Leu Lys Leu Ala Leu Gln Arg Ala Leu Gln Asp
                295                 300                 305

att gct gag gtg gat cac agt gaa gga tgc ttc cgt cag ggc acc ccg   1136
Ile Ala Glu Val Asp His Ser Glu Gly Cys Phe Arg Gln Gly Thr Pro
            310                 315                 320

gag atg tcg aga agc agt ctg gtg tagagatgga cagcctctac ttccatcaga  1190
Glu Met Ser Arg Ser Ser Leu Val
        325                 330

tatatgtggc tttgagaggc aactttgccc ctgtctgtct gatttgctga actttctcag 1250
tcctgatttt aaaacagtta agagagtcct tgtgaggatt aagtgagaca            1300

<210> 18
<211> 330
<212> PRT
<213> Homo sapiens

<400> 18
Met Asp Pro Thr Thr Pro Ala Trp Gly Thr Glu Ser Thr Thr Val Asn
 1               5                  10                  15
Gly Asn Asp Gln Ala Leu Leu Leu Leu Cys Gly Lys Glu Thr Leu Ile
            20                  25                  30
Pro Val Phe Leu Ile Leu Phe Ile Ala Leu Val Gly Leu Val Gly Asn
        35                  40                  45
Gly Phe Val Leu Trp Leu Leu Gly Phe Arg Met Arg Arg Asn Ala Phe
    50                  55                  60
Ser Val Tyr Val Leu Ser Leu Ala Gly Ala Asp Phe Leu Phe Leu Cys
65                  70                  75                  80
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Phe Gln Ile Ile Asn Cys Leu Val Tyr Leu Ser Asn Phe Phe Cys Ser
                85                  90                  95
Ile Ser Ile Asn Phe Pro Ser Phe Phe Thr Thr Val Met Thr Cys Ala
            100                 105                 110
Tyr Leu Ala Gly Leu Ser Met Leu Ser Thr Val Ser Thr Glu Arg Cys
        115                 120                 125
Leu Ser Val Leu Trp Pro Ile Trp Tyr Arg Cys Arg Arg Pro Arg His
    130                 135                 140
Leu Ser Ala Val Val Cys Val Leu Leu Trp Ala Leu Ser Leu Leu Leu
145                 150                 155                 160
Ser Ile Leu Glu Gly Lys Phe Cys Gly Phe Leu Phe Ser Asp Gly Asp
                165                 170                 175
Ser Gly Trp Cys Gln Thr Phe Asp Phe Ile Thr Ala Ala Trp Leu Ile
            180                 185                 190
Phe Leu Phe Met Val Leu Cys Gly Ser Ser Leu Ala Leu Leu Val Arg
        195                 200                 205
Ile Leu Cys Gly Ser Arg Gly Leu Pro Leu Thr Arg Leu Tyr Leu Thr
    210                 215                 220
Ile Leu Leu Thr Val Leu Val Phe Leu Leu Cys Gly Leu Pro Phe Gly
225                 230                 235                 240
Ile Gln Trp Phe Leu Ile Leu Trp Ile Trp Lys Asp Ser Asp Val Leu
                245                 250                 255
Phe Cys His Ile His Pro Val Ser Val Val Leu Ser Ser Leu Asn Ser
            260                 265                 270
Ser Ala Asn Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg Lys Gln
        275                 280                 285
Trp Arg Leu Gln Gln Pro Ile Leu Lys Leu Ala Leu Gln Arg Ala Leu
    290                 295                 300
Gln Asp Ile Ala Glu Val Asp His Ser Glu Gly Cys Phe Arg Gln Gly
305                 310                 315                 320
Thr Pro Glu Met Ser Arg Ser Ser Leu Val
                325                 330
```

<210> 19
<211> 135
<212> PRT
<213> Homo sapiens

<400> 19

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Met Glu Thr Leu Pro Lys Val Leu Glu Val Asp Glu Lys Ser Pro Glu
 1               5                  10                  15
Ala Lys Asp Leu Leu Pro Ser Gln Thr Ala Ser Ser Leu Cys Ile Ser
            20                  25                  30
Ser Arg Ser Glu Ser Val Trp Thr Thr Thr Pro Arg Ser Asn Trp Glu
        35                  40                  45
Ile Tyr Arg Lys Pro Ile Val Ile Met Ser Val Gly Gly Ala Ile Leu
    50                  55                  60
Leu Phe Gly Val Val Ile Thr Cys Leu Ala Tyr Thr Leu Lys Leu Ser
65                  70                  75                  80
Asp Lys Ser Leu Ser Ile Leu Lys Met Val Gly Pro Gly Phe Leu Ser
                85                  90                  95
Leu Gly Leu Met Met Leu Val Cys Gly Leu Val Trp Val Pro Ile Ile
            100                 105                 110
Lys Lys Lys Gln Lys His Arg Gln Lys Ser Asn Phe Leu Arg Ser Leu
        115                 120                 125
Lys Ser Phe Phe Leu Thr Arg
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130 135

<210> 20
<211> 970
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (83)...(943)

<400> 20
gtgtcaccaa cagcacccac aacaaatcca atggacaaac ctctttggaa gtatggacat 60
ctggattctg acccgaaact ag atg atc atc ata ttc aga ctg gtt ggg atg 112
Met Ile Ile Ile Phe Arg Leu Val Gly Met
1 5 10

aca gga aat gcc att gtg ttc tgg ctc ctg ggc ttc agc ttg cac agg 160
Thr Gly Asn Ala Ile Val Phe Trp Leu Leu Gly Phe Ser Leu His Arg
15 20 25

aat gcc ttc tca gtc tac att tta aac ttg gcc ctt gct gac ttc gtc 208
Asn Ala Phe Ser Val Tyr Ile Leu Asn Leu Ala Leu Ala Asp Phe Val
30 35 40

ttc ctc ctc tgt cac atc ata gat tcc atg ctg ctt ctt ctc act gtt 256
Phe Leu Leu Cys His Ile Ile Asp Ser Met Leu Leu Leu Thr Val
45 50 55

ttc tac ccc aac aat atc ttt tct ggg tac ttt tac acc atc atg acg 304
Phe Tyr Pro Asn Asn Ile Phe Ser Gly Tyr Phe Tyr Thr Ile Met Thr
60 65 70

gtt ccc tac atc gca ggc ctg agc atg ctc agt gcc atc agc act gag 352
Val Pro Tyr Ile Ala Gly Leu Ser Met Leu Ser Ala Ile Ser Thr Glu
75 80 85 90

ctc tgc ctg tct gtc ctg tgc ccc atc tgg tat cgc tgc cac cac cca 400
Leu Cys Leu Ser Val Leu Cys Pro Ile Trp Tyr Arg Cys His His Pro
95 100 105

gaa cac aca tca act gtc atg tgt gct gcg ata tgg gtc ctg ccc ctg 448
Glu His Thr Ser Thr Val Met Cys Ala Ala Ile Trp Val Leu Pro Leu
110 115 120

ttg gtc tgc att ctg aat agg tat ttc tgc agt ttc tta gat atc aat 496
Leu Val Cys Ile Leu Asn Arg Tyr Phe Cys Ser Phe Leu Asp Ile Asn
125 130 135

tat aac aat gac aaa cag tgt ctg gca tca aac ttc ttt act aga gca 544
Tyr Asn Asn Asp Lys Gln Cys Leu Ala Ser Asn Phe Phe Thr Arg Ala
140 145 150

tac ctg atg ttt ttg ttt gtg gtc ctt tgt ctg tcc agc atg gct ctg 592
Tyr Leu Met Phe Leu Phe Val Val Leu Cys Leu Ser Ser Met Ala Leu
155 160 165 170

```
ctg gcc agg ttg ttc tgt ggc act ggg cag atg aag ctt acc aga ttg   640
Leu Ala Arg Leu Phe Cys Gly Thr Gly Gln Met Lys Leu Thr Arg Leu
                175                 180                 185

tac gtg acc atc atg ctg act gtt ttg ggt ttt ctc ctc tgt ggg ttg   688
Tyr Val Thr Ile Met Leu Thr Val Leu Gly Phe Leu Leu Cys Gly Leu
            190                 195                 200

ccc ttt gtc atc tac tac ttc ctg tta ttc aat att aag gat ggt ttt   736
Pro Phe Val Ile Tyr Tyr Phe Leu Leu Phe Asn Ile Lys Asp Gly Phe
        205                 210                 215

tgt tta ttt gat ttt aga ttt tat atg tca aca cat gtc ctg act gct   784
Cys Leu Phe Asp Phe Arg Phe Tyr Met Ser Thr His Val Leu Thr Ala
    220                 225                 230

att aac aac tgt gcc aac ccc ata att tac ttt ttc gag ggc tcc ttc   832
Ile Asn Asn Cys Ala Asn Pro Ile Ile Tyr Phe Phe Glu Gly Ser Phe
235                 240                 245                 250

agg cat cag ttg aag cac cag acc ctc aaa atg gtt ctc cag agt gta   880
Arg His Gln Leu Lys His Gln Thr Leu Lys Met Val Leu Gln Ser Val
                255                 260                 265

ctg cag gac act cct gag ata gct gaa aat atg gtg gag atg tca aga   928
Leu Gln Asp Thr Pro Glu Ile Ala Glu Asn Met Val Glu Met Ser Arg
            270                 275                 280

aac ata cca aag cca tgatgaaaag cctttgcctg gacctca                970
Asn Ile Pro Lys Pro
        285
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<210> 21
<211> 287
<212> PRT
<213> Mus musculus

<400> 21

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Met Ile Ile Ile Phe Arg Leu Val Gly Met Thr Gly Asn Ala Ile Val
 1               5                  10                  15
Phe Trp Leu Leu Gly Phe Ser Leu His Arg Asn Ala Phe Ser Val Tyr
            20                  25                  30
Ile Leu Asn Leu Ala Leu Ala Asp Phe Val Phe Leu Leu Cys His Ile
        35                  40                  45
Ile Asp Ser Met Leu Leu Leu Leu Thr Val Phe Tyr Pro Asn Asn Ile
    50                  55                  60
Phe Ser Gly Tyr Phe Tyr Thr Ile Met Thr Val Pro Tyr Ile Ala Gly
65                  70                  75                  80
Leu Ser Met Leu Ser Ala Ile Ser Thr Glu Leu Cys Leu Ser Val Leu
                85                  90                  95
Cys Pro Ile Trp Tyr Arg Cys His His Pro Glu His Thr Ser Thr Val
            100                 105                 110
Met Cys Ala Ala Ile Trp Val Leu Pro Leu Leu Val Cys Ile Leu Asn
        115                 120                 125
Arg Tyr Phe Cys Ser Phe Leu Asp Ile Asn Tyr Asn Asn Asp Lys Gln
```

```
    130                 135                 140
Cys Leu Ala Ser Asn Phe Phe Thr Arg Ala Tyr Leu Met Phe Leu Phe
145                 150                 155                 160
Val Val Leu Cys Leu Ser Ser Met Ala Leu Leu Ala Arg Leu Phe Cys
                165                 170                 175
Gly Thr Gly Gln Met Lys Leu Thr Arg Leu Tyr Val Thr Ile Met Leu
            180                 185                 190
Thr Val Leu Gly Phe Leu Leu Cys Gly Leu Pro Phe Val Ile Tyr Tyr
        195                 200                 205
Phe Leu Leu Phe Asn Ile Lys Asp Gly Phe Cys Leu Phe Asp Phe Arg
    210                 215                 220
Phe Tyr Met Ser Thr His Val Leu Thr Ala Ile Asn Asn Cys Ala Asn
225                 230                 235                 240
Pro Ile Ile Tyr Phe Phe Glu Gly Ser Phe Arg His Gln Leu Lys His
                245                 250                 255
Gln Thr Leu Lys Met Val Leu Gln Ser Val Leu Gln Asp Thr Pro Glu
            260                 265                 270
Ile Ala Glu Asn Met Val Glu Met Ser Arg Asn Ile Pro Lys Pro
        275                 280                 285
```

<210> 22
<211> 1024
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (16)...(918)

<400> 22

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ccagtgcacg aaacc atg cat aga agt atc agc atc agg att ctg ata aca  51
                Met His Arg Ser Ile Ser Ile Arg Ile Leu Ile Thr
                 1               5                  10

aac ttg atg atc gtc atc ctc gga cta gtc ggg ctg aca gga aac gcc   99
Asn Leu Met Ile Val Ile Leu Gly Leu Val Gly Leu Thr Gly Asn Ala
         15                  20                  25

att gtg ttc tgg ctc ctg ctc ttc cgc ttg cgc agg aac gcc ttc tca   147
Ile Val Phe Trp Leu Leu Leu Phe Arg Leu Arg Arg Asn Ala Phe Ser
     30                  35                  40

atc tac atc cta aac ttg gcc ctg gct gac ttc ctc ttc ctc ctc tgc   195
Ile Tyr Ile Leu Asn Leu Ala Leu Ala Asp Phe Leu Phe Leu Leu Cys
 45                  50                  55                  60

cac atc ata gct tcc aca gag cat att ctc acg ttt tcc tcc ccc aac   243
His Ile Ile Ala Ser Thr Glu His Ile Leu Thr Phe Ser Ser Pro Asn
                 65                  70                  75

agt atc ttt atc aat tgc ctt tac acc ttc agg gtg ctt ctc tac atc   291
Ser Ile Phe Ile Asn Cys Leu Tyr Thr Phe Arg Val Leu Leu Tyr Ile
             80                  85                  90

gca ggc ctg agc atg ctc agt gcc atc agc att gag cgc tgc ctg tct   339
Ala Gly Leu Ser Met Leu Ser Ala Ile Ser Ile Glu Arg Cys Leu Ser
```

```
         95                  100                 105

gtc atg tgc ccc atc tgg tat cgc tgc cac agc cca gaa cac aca tca   387
Val Met Cys Pro Ile Trp Tyr Arg Cys His Ser Pro Glu His Thr Ser
    110                 115                 120

act gtc atg tgt gct atg atc tgg gtc ctg tct cta ttg ctc tgc att   435
Thr Val Met Cys Ala Met Ile Trp Val Leu Ser Leu Leu Leu Cys Ile
125                 130                 135                 140

ctg tat agg tat ttc tgc ggc ttc ttg gat acc aaa tat gaa gat gac   483
Leu Tyr Arg Tyr Phe Cys Gly Phe Leu Asp Thr Lys Tyr Glu Asp Asp
                145                 150                 155

tat ggg tgt cta gca atg aac ttc ctt act acc gca tac ctg atg ttt   531
Tyr Gly Cys Leu Ala Met Asn Phe Leu Thr Thr Ala Tyr Leu Met Phe
            160                 165                 170

ttg ttt gta gtc ctc tgt gtg tcc agc ctg gct ctg ctg gcc agg ttg   579
Leu Phe Val Val Leu Cys Val Ser Ser Leu Ala Leu Leu Ala Arg Leu
        175                 180                 185

ttc tgt ggc gct gga cgg atg aag ctt acc aga tta tac gtg acc atc   627
Phe Cys Gly Ala Gly Arg Met Lys Leu Thr Arg Leu Tyr Val Thr Ile
    190                 195                 200

acg ctg acc ctt ttg gtt ttt ctc ctc tgc ggg ttg ccc tgt ggc ttc   675
Thr Leu Thr Leu Leu Val Phe Leu Leu Cys Gly Leu Pro Cys Gly Phe
205                 210                 215                 220

tac tgg ttc ctg tta tcc aaa att aag aat gtt ttt act gta ttt gaa   723
Tyr Trp Phe Leu Leu Ser Lys Ile Lys Asn Val Phe Thr Val Phe Glu
                225                 230                 235

ttt agt ctt tat ctg gca tca gtt gtc ctg act gct att aac agc tgt   771
Phe Ser Leu Tyr Leu Ala Ser Val Val Leu Thr Ala Ile Asn Ser Cys
            240                 245                 250

gcc aac ccc atc att tac ttc ttt gtg ggc tca ttc agg cat cgg ttg   819
Ala Asn Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg His Arg Leu
        255                 260                 265

aag cac cag acc ctc aaa atg gtt ctc cag agt gca ctg cag gac act   867
Lys His Gln Thr Leu Lys Met Val Leu Gln Ser Ala Leu Gln Asp Thr
    270                 275                 280

cct gag aca cct gaa aac atg gtg gag atg tca aga aac aaa gca gag   915
Pro Glu Thr Pro Glu Asn Met Val Glu Met Ser Arg Asn Lys Ala Glu
285                 290                 295                 300

ctg tgatgaagag cctctgcccg gacctcagag gtggctttgg agtgagcact        968
Leu

gccctgctgc acttggccac tgtccactct cctctcagct tactcacttg gcatgc     1024
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<210> 23

<211> 301
<212> PRT
<213> Mus musculus

<400> 23
Met His Arg Ser Ile Ser Ile Arg Ile Leu Ile Thr Asn Leu Met Ile
 1   5   10   15
Val Ile Leu Gly Leu Val Gly Leu Thr Gly Asn Ala Ile Val Phe Trp
            20   25   30
Leu Leu Leu Phe Arg Leu Arg Arg Asn Ala Phe Ser Ile Tyr Ile Leu
        35   40   45
Asn Leu Ala Leu Ala Asp Phe Leu Phe Leu Leu Cys His Ile Ile Ala
    50   55   60
Ser Thr Glu His Ile Leu Thr Phe Ser Ser Pro Asn Ser Ile Phe Ile
65   70   75   80
Asn Cys Leu Tyr Thr Phe Arg Val Leu Leu Tyr Ile Ala Gly Leu Ser
                85   90   95
Met Leu Ser Ala Ile Ser Ile Glu Arg Cys Leu Ser Val Met Cys Pro
            100   105   110
Ile Trp Tyr Arg Cys His Ser Pro Glu His Thr Ser Thr Val Met Cys
        115   120   125
Ala Met Ile Trp Val Leu Ser Leu Leu Leu Cys Ile Leu Tyr Arg Tyr
    130   135   140
Phe Cys Gly Phe Leu Asp Thr Lys Tyr Glu Asp Asp Tyr Gly Cys Leu
145   150   155   160
Ala Met Asn Phe Leu Thr Thr Ala Tyr Leu Met Phe Leu Phe Val Val
                165   170   175
Leu Cys Val Ser Ser Leu Ala Leu Leu Ala Arg Leu Phe Cys Gly Ala
            180   185   190
Gly Arg Met Lys Leu Thr Arg Leu Tyr Val Thr Ile Thr Leu Thr Leu
        195   200   205
Leu Val Phe Leu Leu Cys Gly Leu Pro Cys Gly Phe Tyr Trp Phe Leu
    210   215   220
Leu Ser Lys Ile Lys Asn Val Phe Thr Val Phe Glu Phe Ser Leu Tyr
225   230   235   240
Leu Ala Ser Val Val Leu Thr Ala Ile Asn Ser Cys Ala Asn Pro Ile
                245   250   255
Ile Tyr Phe Phe Val Gly Ser Phe Arg His Arg Leu Lys His Gln Thr
            260   265   270
Leu Lys Met Val Leu Gln Ser Ala Leu Gln Asp Thr Pro Glu Thr Pro
        275   280   285
Glu Asn Met Val Glu Met Ser Arg Asn Lys Ala Glu Leu
    290   295   300

<210> 24
<211> 1045
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (106)...(1020)

<400> 24
tttgtgttca tagtgaatga ctaatttctt ctttgtgttc ccagtgcaga gtttctggcc 60
ctaaacacct cagcctcagc aatgtcaccc acgacaacaa gtcca atg gac gaa acc 117

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                                                    Met Asp Glu Thr
                                                     1

agc cct aga agt att gac atc gag tca ctg atc cca aac ttg atg atc   165
Ser Pro Arg Ser Ile Asp Ile Glu Ser Leu Ile Pro Asn Leu Met Ile
 5                   10                  15                  20

atc atc ttt gga ctg gtt ggg ctg aca gga aat gcc att gtg ctc tgg   213
Ile Ile Phe Gly Leu Val Gly Leu Thr Gly Asn Ala Ile Val Leu Trp
                25                  30                  35

ctc ctg ggc ttc tgc ttg cac agg aat gcc ttc tta gtc tac atc cta   261
Leu Leu Gly Phe Cys Leu His Arg Asn Ala Phe Leu Val Tyr Ile Leu
            40                  45                  50

aac ttg gcc ctg gct gac ttc ctc ttc ctt ctc tgt cac ttc ata aat   309
Asn Leu Ala Leu Ala Asp Phe Leu Phe Leu Leu Cys His Phe Ile Asn
        55                  60                  65

tca gca atg ttt ctt ctc aag gtt cct ata ccc aac ggt atc ttt gtc   357
Ser Ala Met Phe Leu Leu Lys Val Pro Ile Pro Asn Gly Ile Phe Val
    70                  75                  80

tat tgc ttt tac acc atc aaa atg gtt ctc tac atc aca ggc ctg agc   405
Tyr Cys Phe Tyr Thr Ile Lys Met Val Leu Tyr Ile Thr Gly Leu Ser
 85                  90                  95                  100

atg ctc agt gcc atc agc act gag cgc tgc ctt tct gtc ctg tgc ccc   453
Met Leu Ser Ala Ile Ser Thr Glu Arg Cys Leu Ser Val Leu Cys Pro
                105                 110                 115

atc tgg tat cac tgc cgc cgc cca gaa cac aca tca act gtc atg tgt   501
Ile Trp Tyr His Cys Arg Arg Pro Glu His Thr Ser Thr Val Met Cys
            120                 125                 130

gct gtg att tgg atc ttt tcc gtg ttg atc tgc att ctg aaa gaa tat   549
Ala Val Ile Trp Ile Phe Ser Val Leu Ile Cys Ile Leu Lys Glu Tyr
        135                 140                 145

ttc tgt gat ttc ttt ggt acc aaa ttg gga aat tac tat gtg tgt cag   597
Phe Cys Asp Phe Phe Gly Thr Lys Leu Gly Asn Tyr Tyr Val Cys Gln
    150                 155                 160

gca tcc aac ttc ttt atg gga gca tac cta atg ttt ttg ttt gta gtc   645
Ala Ser Asn Phe Phe Met Gly Ala Tyr Leu Met Phe Leu Phe Val Val
165                 170                 175                 180

ctc tgt ctg tcc acc ctg gct ctg ctg gcc agg ttg ttc tgt ggt gct   693
Leu Cys Leu Ser Thr Leu Ala Leu Leu Ala Arg Leu Phe Cys Gly Ala
                185                 190                 195

gag aag atg aaa ttt acc aga tta ttc gtg acc atc atg ctg acc att   741
Glu Lys Met Lys Phe Thr Arg Leu Phe Val Thr Ile Met Leu Thr Ile
            200                 205                 210

ttg gtt ttt ctc ctc tgt ggg ttg cca tgg ggc ttc ttc tgg ttc ctg   789
Leu Val Phe Leu Leu Cys Gly Leu Pro Trp Gly Phe Phe Trp Phe Leu
```

```
        215                 220                 225

tta atc tgg att aag ggt ggt ttt agt gta cta gat tat aga ctt tat   837
Leu Ile Trp Ile Lys Gly Gly Phe Ser Val Leu Asp Tyr Arg Leu Tyr
    230                 235                 240

ttg gca tca att gtc cta act gtt gtt aac agc tgt gcc aac ccc atc   885
Leu Ala Ser Ile Val Leu Thr Val Val Asn Ser Cys Ala Asn Pro Ile
245                 250                 255                 260

att tac ttc ttc gtg gga tca ttc agg cat cgg ttg aag cac cag acc   933
Ile Tyr Phe Phe Val Gly Ser Phe Arg His Arg Leu Lys His Gln Thr
                265                 270                 275

ctc aaa atg gtt ctc cag agt gca ctg cag gac act cct gag aca cat   981
Leu Lys Met Val Leu Gln Ser Ala Leu Gln Asp Thr Pro Glu Thr His
            280                 285                 290

gaa aac atg gtg gag atg tca aga atc aaa gca gag cag tgatgaagag    1030
Glu Asn Met Val Glu Met Ser Arg Ile Lys Ala Glu Gln
        295                 300                 305

cctctgcctg gacct                                                1045
```

<210> 25
<211> 305
<212> PRT
<213> Mus musculus

<400> 25

```
Met Asp Glu Thr Ser Pro Arg Ser Ile Asp Ile Glu Ser Leu Ile Pro
 1               5                  10                  15
Asn Leu Met Ile Ile Ile Phe Gly Leu Val Gly Leu Thr Gly Asn Ala
            20                  25                  30
Ile Val Leu Trp Leu Leu Gly Phe Cys Leu His Arg Asn Ala Phe Leu
        35                  40                  45
Val Tyr Ile Leu Asn Leu Ala Leu Ala Asp Phe Leu Phe Leu Leu Cys
    50                  55                  60
His Phe Ile Asn Ser Ala Met Phe Leu Leu Lys Val Pro Ile Pro Asn
65                  70                  75                  80
Gly Ile Phe Val Tyr Cys Phe Tyr Thr Ile Lys Met Val Leu Tyr Ile
                85                  90                  95
Thr Gly Leu Ser Met Leu Ser Ala Ile Ser Thr Glu Arg Cys Leu Ser
            100                 105                 110
Val Leu Cys Pro Ile Trp Tyr His Cys Arg Arg Pro Glu His Thr Ser
        115                 120                 125
Thr Val Met Cys Ala Val Ile Trp Ile Phe Ser Val Leu Ile Cys Ile
    130                 135                 140
Leu Lys Glu Tyr Phe Cys Asp Phe Phe Gly Thr Lys Leu Gly Asn Tyr
145                 150                 155                 160
Tyr Val Cys Gln Ala Ser Asn Phe Phe Met Gly Ala Tyr Leu Met Phe
                165                 170                 175
Leu Phe Val Val Leu Cys Leu Ser Thr Leu Ala Leu Leu Ala Arg Leu
            180                 185                 190
Phe Cys Gly Ala Glu Lys Met Lys Phe Thr Arg Leu Phe Val Thr Ile
        195                 200                 205
Met Leu Thr Ile Leu Val Phe Leu Leu Cys Gly Leu Pro Trp Gly Phe
```

```
    210                 215                 220
Phe Trp Phe Leu Leu Ile Trp Ile Lys Gly Gly Phe Ser Val Leu Asp
225                 230                 235                 240
Tyr Arg Leu Tyr Leu Ala Ser Ile Val Leu Thr Val Val Asn Ser Cys
                245                 250                 255
Ala Asn Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg His Arg Leu
            260                 265                 270
Lys His Gln Thr Leu Lys Met Val Leu Gln Ser Ala Leu Gln Asp Thr
        275                 280                 285
Pro Glu Thr His Glu Asn Met Val Glu Met Ser Arg Ile Lys Ala Glu
    290                 295                 300
Gln
305
```

<210> 26
<211> 980
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (45)...(959)

<400> 26

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tagacacctc agcatatgca atggcaccca cgaccacaaa tcca atg gac aaa acc  56
                                                 Met Asp Lys Thr
                                                  1

atc ctt gga agt att gac atc gag acc ctg atc cga cat ttg atg atc   104
Ile Leu Gly Ser Ile Asp Ile Glu Thr Leu Ile Arg His Leu Met Ile
 5                  10                  15                  20

atc atc ttc gga ctg gtc ggg ctg aca gga aat gcc att gtg ttc tgg   152
Ile Ile Phe Gly Leu Val Gly Leu Thr Gly Asn Ala Ile Val Phe Trp
                25                  30                  35

ctc ctg ggc ttc cac ttg cac agg aat gcc ttc tta gtc tac atc ata   200
Leu Leu Gly Phe His Leu His Arg Asn Ala Phe Leu Val Tyr Ile Ile
            40                  45                  50

aac ttg gcc ctg gct gac ttc ttc tat ctg ctc tgt cac atc ata aat   248
Asn Leu Ala Leu Ala Asp Phe Phe Tyr Leu Leu Cys His Ile Ile Asn
        55                  60                  65

tcc ata atg ttt ctt ctc aag gtt ccc tca ccc aac att atc ttg gac   296
Ser Ile Met Phe Leu Leu Lys Val Pro Ser Pro Asn Ile Ile Leu Asp
    70                  75                  80

cat tgc ttt tac acc atc atg ata gtt ctc tac atc aca ggc ctg agc   344
His Cys Phe Tyr Thr Ile Met Ile Val Leu Tyr Ile Thr Gly Leu Ser
 85                  90                  95                  100

atg ctc agc gcc atc agc act gag cgc tgc ctg tct gtc ctg tgc ccc   392
Met Leu Ser Ala Ile Ser Thr Glu Arg Cys Leu Ser Val Leu Cys Pro
                105                 110                 115
```

```
atc tgg tat cgc tgc cac cgt cca gaa cac aca tca act gtc atg tgt   440
Ile Trp Tyr Arg Cys His Arg Pro Glu His Thr Ser Thr Val Met Cys
            120                 125                 130

gct gtg atc tgg gta atg tcc ctg ttg atc tct att ctc aat gga tat   488
Ala Val Ile Trp Val Met Ser Leu Leu Ile Ser Ile Leu Asn Gly Tyr
        135                 140                 145

ttc tgt aat ttc tct agt ccc aaa tat gta aat aac tct gtg tgt cag   536
Phe Cys Asn Phe Ser Ser Pro Lys Tyr Val Asn Asn Ser Val Cys Gln
    150                 155                 160

gca tca cac atc ttt atc aga aca tac cca ata ttt ttg ttt gta ctc   584
Ala Ser His Ile Phe Ile Arg Thr Tyr Pro Ile Phe Leu Phe Val Leu
165                 170                 175                 180

ctc tgt ctg tcc acc ctt gct ctg ctg gcc agg ttg ttc tct ggt gct   632
Leu Cys Leu Ser Thr Leu Ala Leu Leu Ala Arg Leu Phe Ser Gly Ala
                185                 190                 195

ggg aag agg aaa ttt acc aga tta ttc gtg acc atc atg ctg gcc att   680
Gly Lys Arg Lys Phe Thr Arg Leu Phe Val Thr Ile Met Leu Ala Ile
            200                 205                 210

ttg gtt ttt ctt ctc tgt ggg tta ccc ctg ggc ttc ttc tgg ttt ctg   728
Leu Val Phe Leu Leu Cys Gly Leu Pro Leu Gly Phe Phe Trp Phe Leu
        215                 220                 225

tca ccc tgg att gag gat cgt ttc att gta cta gat tat aga ctt ttt   776
Ser Pro Trp Ile Glu Asp Arg Phe Ile Val Leu Asp Tyr Arg Leu Phe
    230                 235                 240

ttt gca tca gtt gtc cta act gtt gtt aac agc tgt gcc aac ccc atc   824
Phe Ala Ser Val Val Leu Thr Val Val Asn Ser Cys Ala Asn Pro Ile
245                 250                 255                 260

att tac ttc ttt gtg ggc tcc ttc agg cat cgg ttg aag caa cag acc   872
Ile Tyr Phe Phe Val Gly Ser Phe Arg His Arg Leu Lys Gln Gln Thr
                265                 270                 275

ctc aaa atg ttt ctc cag aga gca ctg cag gac acc cct gag aca cct   920
Leu Lys Met Phe Leu Gln Arg Ala Leu Gln Asp Thr Pro Glu Thr Pro
            280                 285                 290

gaa aac atg gtg gag atg tca aga agc aaa gca gag ccg tgatgaagag    969
Glu Asn Met Val Glu Met Ser Arg Ser Lys Ala Glu Pro
        295                 300                 305

cctcttccag g                                                     980
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<210> 27
<211> 305
<212> PRT
<213> Mus musculus

<400> 27
Met Asp Lys Thr Ile Leu Gly Ser Ile Asp Ile Glu Thr Leu Ile Arg

```
 1               5                  10                  15
His Leu Met Ile Ile Ile Phe Gly Leu Val Gly Leu Thr Gly Asn Ala
            20                  25                  30
Ile Val Phe Trp Leu Leu Gly Phe His Leu His Arg Asn Ala Phe Leu
        35                  40                  45
Val Tyr Ile Ile Asn Leu Ala Leu Ala Asp Phe Phe Tyr Leu Leu Cys
    50                  55                  60
His Ile Ile Asn Ser Ile Met Phe Leu Leu Lys Val Pro Ser Pro Asn
65                  70                  75                  80
Ile Ile Leu Asp His Cys Phe Tyr Thr Ile Met Ile Val Leu Tyr Ile
                85                  90                  95
Thr Gly Leu Ser Met Leu Ser Ala Ile Ser Thr Glu Arg Cys Leu Ser
            100                 105                 110
Val Leu Cys Pro Ile Trp Tyr Arg Cys His Arg Pro Glu His Thr Ser
        115                 120                 125
Thr Val Met Cys Ala Val Ile Trp Val Met Ser Leu Leu Ile Ser Ile
    130                 135                 140
Leu Asn Gly Tyr Phe Cys Asn Phe Ser Ser Pro Lys Tyr Val Asn Asn
145                 150                 155                 160
Ser Val Cys Gln Ala Ser His Ile Phe Ile Arg Thr Tyr Pro Ile Phe
                165                 170                 175
Leu Phe Val Leu Leu Cys Leu Ser Thr Leu Ala Leu Leu Ala Arg Leu
            180                 185                 190
Phe Ser Gly Ala Gly Lys Arg Lys Phe Thr Arg Leu Phe Val Thr Ile
        195                 200                 205
Met Leu Ala Ile Leu Val Phe Leu Leu Cys Gly Leu Pro Leu Gly Phe
    210                 215                 220
Phe Trp Phe Leu Ser Pro Trp Ile Glu Asp Arg Phe Ile Val Leu Asp
225                 230                 235                 240
Tyr Arg Leu Phe Phe Ala Ser Val Val Leu Thr Val Val Asn Ser Cys
                245                 250                 255
Ala Asn Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg His Arg Leu
            260                 265                 270
Lys Gln Gln Thr Leu Lys Met Phe Leu Gln Arg Ala Leu Gln Asp Thr
        275                 280                 285
Pro Glu Thr Pro Glu Asn Met Val Glu Met Ser Arg Ser Lys Ala Glu
    290                 295                 300
Pro
305
```

<210> 28
<211> 408
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(405)

<400> 28

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atg gag act ctc ccc aag gtt cta gag gtc gat gag aag tct cca gaa   48
Met Glu Thr Leu Pro Lys Val Leu Glu Val Asp Glu Lys Ser Pro Glu
 1               5                  10                  15

gcc aag gac ctg ctg ccc agc cag acc gcc agc tcc ctg tgc atc agc   96
Ala Lys Asp Leu Leu Pro Ser Gln Thr Ala Ser Ser Leu Cys Ile Ser
```

```
            20                  25                  30

tcc agg agc gag tct gtc tgg acc acc acc ccc agg agt aac tgg gaa   144
Ser Arg Ser Glu Ser Val Trp Thr Thr Thr Pro Arg Ser Asn Trp Glu
         35                  40                  45

atc tac cgc aag ccc atc gtt atc atg tca gtg ggc ggt gcc atc ctg   192
Ile Tyr Arg Lys Pro Ile Val Ile Met Ser Val Gly Gly Ala Ile Leu
     50                  55                  60

ctt ttc ggc gtg gtc atc acc tgc ttg gcc tac acc ttg aag ctg agt   240
Leu Phe Gly Val Val Ile Thr Cys Leu Ala Tyr Thr Leu Lys Leu Ser
 65                  70                  75                  80

gac aag agt ctc tcc atc ctc aaa atg gta ggg cct ggc ttc ctg tcc   288
Asp Lys Ser Leu Ser Ile Leu Lys Met Val Gly Pro Gly Phe Leu Ser
                 85                  90                  95

ctg gga ctc atg atg ctg gtg tgc ggg ctg gtg tgg gtg ccc atc atc   336
Leu Gly Leu Met Met Leu Val Cys Gly Leu Val Trp Val Pro Ile Ile
            100                 105                 110

aaa aag aaa cag aag cac aga cag aag tcg aat ttc tta cgc agc ctc   384
Lys Lys Lys Gln Lys His Arg Gln Lys Ser Asn Phe Leu Arg Ser Leu
        115                 120                 125

aag tcc ttc ttc ctg act cgc tga                                  408
Lys Ser Phe Phe Leu Thr Arg
    130                 135


<210> 29
<211> 135
<212> PRT
<213> Homo sapiens

<400> 29
Met Glu Thr Leu Pro Lys Val Leu Glu Val Asp Glu Lys Ser Pro Glu
 1               5                  10                  15
Ala Lys Asp Leu Leu Pro Ser Gln Thr Ala Ser Ser Leu Cys Ile Ser
            20                  25                  30
Ser Arg Ser Glu Ser Val Trp Thr Thr Thr Pro Arg Ser Asn Trp Glu
        35                  40                  45
Ile Tyr Arg Lys Pro Ile Val Ile Met Ser Val Gly Gly Ala Ile Leu
    50                  55                  60
Leu Phe Gly Val Val Ile Thr Cys Leu Ala Tyr Thr Leu Lys Leu Ser
65                  70                  75                  80
Asp Lys Ser Leu Ser Ile Leu Lys Met Val Gly Pro Gly Phe Leu Ser
                85                  90                  95
Leu Gly Leu Met Met Leu Val Cys Gly Leu Val Trp Val Pro Ile Ile
            100                 105                 110
Lys Lys Lys Gln Lys His Arg Gln Lys Ser Asn Phe Leu Arg Ser Leu
        115                 120                 125
Lys Ser Phe Phe Leu Thr Arg
    130                 135
```

<210> 30
<211> 1400
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (332)...(1297)

<400> 30
tcaggcccag gatagagtaa tcatcgggtc cacagcactg gctagatgag tgggggtgtt 60
ttgatcctaa tgttattccc atgttagcac agaacttgtg tggcagtaga gagaggtcag 120
gcttcagagt cagcaagaac tggatttcaa actggatttg aggaccccca ccttttgata 180
ggtgacttat tctctgtgag tctctgatct gccctcttta aatgaggaag taaatcccac 240
atggcagggt ggtggggaga atcagagatc atacagctgg tgatcacaac tggtttctgt 300
ttccagggtc accagactgg ggtttctgag c atg gat tca acc atc cca gtc 352
Met Asp Ser Thr Ile Pro Val
1 5

ttg ggt aca gaa ctg aca cca atc aac gga cgt gag gag act cct tgc 400
Leu Gly Thr Glu Leu Thr Pro Ile Asn Gly Arg Glu Glu Thr Pro Cys
10 15 20

tac aag cag acc ctg agc ttc acg ggg ctg acg tgc atc gtt tcc ctt 448
Tyr Lys Gln Thr Leu Ser Phe Thr Gly Leu Thr Cys Ile Val Ser Leu
25 30 35

gtc gcg ctg aca gga aac gcg gtt gtg ctc tgg ctc ctg ggc tgc cgc 496
Val Ala Leu Thr Gly Asn Ala Val Val Leu Trp Leu Leu Gly Cys Arg
40 45 50 55

atg cgc agg aac gct gtc tcc atc tac atc ctc aac ctg gtc gcg gcc 544
Met Arg Arg Asn Ala Val Ser Ile Tyr Ile Leu Asn Leu Val Ala Ala
60 65 70

gac ttc ctc ttc ctt agc ggc cac att ata tgt tcg ccg tta cgc ctc 592
Asp Phe Leu Phe Leu Ser Gly His Ile Ile Cys Ser Pro Leu Arg Leu
75 80 85

atc aat atc cgc cat ccc atc tcc aaa atc ctc agt cct gtg atg acc 640
Ile Asn Ile Arg His Pro Ile Ser Lys Ile Leu Ser Pro Val Met Thr
90 95 100

ttt ccc tac ttt ata ggc cta agc atg ctg agc gcc atc agc acc gag 688
Phe Pro Tyr Phe Ile Gly Leu Ser Met Leu Ser Ala Ile Ser Thr Glu
105 110 115

cgc tgc ctg tcc atc ctg tgg ccc atc tgg tac cac tgc cgc cgc ccc 736
Arg Cys Leu Ser Ile Leu Trp Pro Ile Trp Tyr His Cys Arg Arg Pro
120 125 130 135

aga tac ctg tca tcg gtc atg tgt gtc ctg ctc tgg gcc ctg tcc ctg 784
Arg Tyr Leu Ser Ser Val Met Cys Val Leu Leu Trp Ala Leu Ser Leu
140 145 150

ctg cgg agt atc ctg gag tgg atg ttc tgt gac ttc ctg ttt agt ggt 832
Leu Arg Ser Ile Leu Glu Trp Met Phe Cys Asp Phe Leu Phe Ser Gly

```
            155                 160                 165

gct gat tct gtt tgg tgt gaa acg tca gat ttc att aca atc gcg tgg   880
Ala Asp Ser Val Trp Cys Glu Thr Ser Asp Phe Ile Thr Ile Ala Trp
        170                 175                 180

ctg gtt ttt tta tgt gtg gtt ctc tgt ggg tcc agc ctg gtc ctg ctg   928
Leu Val Phe Leu Cys Val Val Leu Cys Gly Ser Ser Leu Val Leu Leu
    185                 190                 195

gtc agg att ctc tgt gga tcc cgg aag atg ccg ctg acc agg ctg tac   976
Val Arg Ile Leu Cys Gly Ser Arg Lys Met Pro Leu Thr Arg Leu Tyr
200                 205                 210                 215

gtg acc atc ctc ctc aca gtg ctg gtc ttc ctc ctc tgt ggc ctg ccc   1024
Val Thr Ile Leu Leu Thr Val Leu Val Phe Leu Leu Cys Gly Leu Pro
                220                 225                 230

ttt ggc att cag tgg gcc ctg ttt tcc agg atc cac ctg gat tgg aaa   1072
Phe Gly Ile Gln Trp Ala Leu Phe Ser Arg Ile His Leu Asp Trp Lys
            235                 240                 245

gtc tta ttt tgt cat gtg cat cta gtt tcc att ttc ctg tcc gct ctt   1120
Val Leu Phe Cys His Val His Leu Val Ser Ile Phe Leu Ser Ala Leu
        250                 255                 260

aac agc agt gcc aac ccc atc att tac ttc ttc gtg ggc tcc ttt agg   1168
Asn Ser Ser Ala Asn Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg
    265                 270                 275

cag cgt caa aat agg cag aac ctg aag ctg gtt ctc cag agg gct ctg   1216
Gln Arg Gln Asn Arg Gln Asn Leu Lys Leu Val Leu Gln Arg Ala Leu
280                 285                 290                 295

cag gac acg cct gag gtg gat gaa ggt gga ggg tgg ctt cct cag gaa   1264
Gln Asp Thr Pro Glu Val Asp Glu Gly Gly Gly Trp Leu Pro Gln Glu
                300                 305                 310

acc ctg gag ctg tcg gga agc aga ttg gag cag tgaggaagaa cctctgccct 1317
Thr Leu Glu Leu Ser Gly Ser Arg Leu Glu Gln
            315                 320

gtcagacagg actttgagag caatgctgcc ctgccaccct tgacaattat atgcattttt 1377
cttagccttc tgcctcagaa atg                                         1400

<210> 31
<211> 322
<212> PRT
<213> Homo sapiens

<400> 31
Met Asp Ser Thr Ile Pro Val Leu Gly Thr Glu Leu Thr Pro Ile Asn
 1               5                  10                  15
Gly Arg Glu Glu Thr Pro Cys Tyr Lys Gln Thr Leu Ser Phe Thr Gly
            20                  25                  30
Leu Thr Cys Ile Val Ser Leu Val Ala Leu Thr Gly Asn Ala Val Val
        35                  40                  45
```

```
Leu Trp Leu Leu Gly Cys Arg Met Arg Arg Asn Ala Val Ser Ile Tyr
    50                  55                  60
Ile Leu Asn Leu Val Ala Ala Asp Phe Leu Phe Leu Ser Gly His Ile
65                  70                  75                  80
Ile Cys Ser Pro Leu Arg Leu Ile Asn Ile Arg His Pro Ile Ser Lys
                85                  90                  95
Ile Leu Ser Pro Val Met Thr Phe Pro Tyr Phe Ile Gly Leu Ser Met
            100                 105                 110
Leu Ser Ala Ile Ser Thr Glu Arg Cys Leu Ser Ile Leu Trp Pro Ile
        115                 120                 125
Trp Tyr His Cys Arg Arg Pro Arg Tyr Leu Ser Ser Val Met Cys Val
    130                 135                 140
Leu Leu Trp Ala Leu Ser Leu Leu Arg Ser Ile Leu Glu Trp Met Phe
145                 150                 155                 160
Cys Asp Phe Leu Phe Ser Gly Ala Asp Ser Val Trp Cys Glu Thr Ser
                165                 170                 175
Asp Phe Ile Thr Ile Ala Trp Leu Val Phe Leu Cys Val Val Leu Cys
            180                 185                 190
Gly Ser Ser Leu Val Leu Leu Val Arg Ile Leu Cys Gly Ser Arg Lys
        195                 200                 205
Met Pro Leu Thr Arg Leu Tyr Val Thr Ile Leu Leu Thr Val Leu Val
    210                 215                 220
Phe Leu Leu Cys Gly Leu Pro Phe Gly Ile Gln Trp Ala Leu Phe Ser
225                 230                 235                 240
Arg Ile His Leu Asp Trp Lys Val Leu Phe Cys His Val His Leu Val
                245                 250                 255
Ser Ile Phe Leu Ser Ala Leu Asn Ser Ser Ala Asn Pro Ile Ile Tyr
            260                 265                 270
Phe Phe Val Gly Ser Phe Arg Gln Arg Gln Asn Arg Gln Asn Leu Lys
        275                 280                 285
Leu Val Leu Gln Arg Ala Leu Gln Asp Thr Pro Glu Val Asp Glu Gly
    290                 295                 300
Gly Gly Trp Leu Pro Gln Glu Thr Leu Glu Leu Ser Gly Ser Arg Leu
305                 310                 315                 320
Glu Gln
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<210> 32
<211> 1604
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (433)...(1398)

<400> 32
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tgcatggtct tccttcctgt ccatggatga ccagtcctag tcacgagtgt gtcacaacca 60
cctctttgtg tatctgaatt cctccacctg aaagaaaatt tcagacccag gatagattaa 120
tcatcgggtc caaagccctg gccggatgag tgggggtgtt ttgatcctaa tgttattccc 180
atgtcagcac agaacttgtg tggcagtaga gagatgtcag gcttcagagt caacaagaac 240
tggatttcaa actggatttg aggaccccca cctttggtaa gtgacttatt atctgcgagc 300
ctctgtttct ctcttcttta aatgaggaca gtaaatccca tacggcaggg tggtggggag 360
aatcagagat gatacagctg gtgatcacat ctggtttgtg ttcccagggg caccagacta 420
gagtttctga gc atg gat cca acc gtc cca gtc ttc ggt aca aaa ctg aca 471
             Met Asp Pro Thr Val Pro Val Phe Gly Thr Lys Leu Thr
```

```
                1               5                  10

cca atc aac gga cgt gag gag act cct tgc tac aat cag acc ctg agc   519
Pro Ile Asn Gly Arg Glu Glu Thr Pro Cys Tyr Asn Gln Thr Leu Ser
     15                  20                  25

ttc acg gtg ctg acg tgc atc att tcc ctt gtc gga ctg aca gga aac   567
Phe Thr Val Leu Thr Cys Ile Ile Ser Leu Val Gly Leu Thr Gly Asn
 30                  35                  40                  45

gcg gta gtg ctc tgg ctc ctg ggc tac cgc atg cgc agg aac gct gtc   615
Ala Val Val Leu Trp Leu Leu Gly Tyr Arg Met Arg Arg Asn Ala Val
                50                  55                  60

tcc atc tac atc ctc aac ctg gcc gca gca gac ttc ctc ttc ctc agc   663
Ser Ile Tyr Ile Leu Asn Leu Ala Ala Ala Asp Phe Leu Phe Leu Ser
             65                  70                  75

ttc cag att ata cgt tcg cca tta cgc ctc atc aat atc agc cat ctc   711
Phe Gln Ile Ile Arg Ser Pro Leu Arg Leu Ile Asn Ile Ser His Leu
         80                  85                  90

atc cgc aaa atc ctc gtt tct gtg atg acc ttt ccc tac ttt aca ggc   759
Ile Arg Lys Ile Leu Val Ser Val Met Thr Phe Pro Tyr Phe Thr Gly
     95                  100                 105

ctg agt atg ctg agc gcc atc agc acc gag cgc tgc ctg tct gtt ctg   807
Leu Ser Met Leu Ser Ala Ile Ser Thr Glu Arg Cys Leu Ser Val Leu
110                 115                 120                 125

tgg ccc atc tgg tac cgc tgc cgc cgc ccc aca cac ctg tca gcg gtc   855
Trp Pro Ile Trp Tyr Arg Cys Arg Arg Pro Thr His Leu Ser Ala Val
                130                 135                 140

gtg tgt gtc ctg ctc tgg ggc ctg tcc ctg ctg ttt agt atg ctg gag   903
Val Cys Val Leu Leu Trp Gly Leu Ser Leu Leu Phe Ser Met Leu Glu
            145                 150                 155

tgg agg ttc tgt gac ttc ctg ttt agt ggt gct gat tct agt tgg tgt   951
Trp Arg Phe Cys Asp Phe Leu Phe Ser Gly Ala Asp Ser Ser Trp Cys
        160                 165                 170

gaa acg tca gat ttc atc cca gtc gcg tgg ctg att ttt tta tgt gtg   999
Glu Thr Ser Asp Phe Ile Pro Val Ala Trp Leu Ile Phe Leu Cys Val
    175                 180                 185

gtt ctc tgt gtt tcc agc ctg gtc ctg ctg gtc agg atc ctc tgt gga   1047
Val Leu Cys Val Ser Ser Leu Val Leu Leu Val Arg Ile Leu Cys Gly
190                 195                 200                 205

tcc cgg aag atg ccg ctg acc agg ctg tac gtg acc atc ctg ctc aca   1095
Ser Arg Lys Met Pro Leu Thr Arg Leu Tyr Val Thr Ile Leu Leu Thr
                210                 215                 220

gtg ctg gtc ttc ctc ctc tgc ggc ctg ccc ttc ggc att ctg ggg gcc   1143
Val Leu Val Phe Leu Leu Cys Gly Leu Pro Phe Gly Ile Leu Gly Ala
            225                 230                 235
```

```
cta att tac agg atg cac ctg aat ttg gaa gtc tta tat tgt cat gtt   1191
Leu Ile Tyr Arg Met His Leu Asn Leu Glu Val Leu Tyr Cys His Val
        240                 245                 250

tat ctg gtt tgc atg tcc ctg tcc tct cta aac agt agt gcc aac ccc   1239
Tyr Leu Val Cys Met Ser Leu Ser Ser Leu Asn Ser Ser Ala Asn Pro
    255                 260                 265

atc att tac ttc ttc gtg ggc tcc ttt agg cag cgt caa aat agg cag   1287
Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg Gln Arg Gln Asn Arg Gln
270                 275                 280                 285

aac ctg aag ctg gtt ctc cag agg gct ctg cag gac aag cct gag gtg   1335
Asn Leu Lys Leu Val Leu Gln Arg Ala Leu Gln Asp Lys Pro Glu Val
                290                 295                 300

gat aaa ggt gaa ggg cag ctt cct gag gaa agc ctg gag ctg tcg gga   1383
Asp Lys Gly Glu Gly Gln Leu Pro Glu Glu Ser Leu Glu Leu Ser Gly
            305                 310                 315

agc aga ttg ggg cca tgagggagag cctctgccct gtcagtcaga cgggactttg   1438
Ser Arg Leu Gly Pro
        320

agagcaacac tgtcctgcca cccttgacaa ttacatgcgt ttttcttagc gtttcgcctc 1498
agaaatgtct cagtggtaac tcaaggtctt caaataaatg tttatctaac ctgacagttg 1558
cagttttcac ccatggaaag cattagtctg acagtacaat gtttgg                1604
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<210> 33
<211> 322
<212> PRT
<213> Homo sapiens

<400> 33

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Met Asp Pro Thr Val Pro Val Phe Gly Thr Lys Leu Thr Pro Ile Asn
 1               5                  10                  15
Gly Arg Glu Glu Thr Pro Cys Tyr Asn Gln Thr Leu Ser Phe Thr Val
            20                  25                  30
Leu Thr Cys Ile Ile Ser Leu Val Gly Leu Thr Gly Asn Ala Val Val
        35                  40                  45
Leu Trp Leu Leu Gly Tyr Arg Met Arg Arg Asn Ala Val Ser Ile Tyr
    50                  55                  60
Ile Leu Asn Leu Ala Ala Ala Asp Phe Leu Phe Leu Ser Phe Gln Ile
65                  70                  75                  80
Ile Arg Ser Pro Leu Arg Leu Ile Asn Ile Ser His Leu Ile Arg Lys
                85                  90                  95
Ile Leu Val Ser Val Met Thr Phe Pro Tyr Phe Thr Gly Leu Ser Met
            100                 105                 110
Leu Ser Ala Ile Ser Thr Glu Arg Cys Leu Ser Val Leu Trp Pro Ile
        115                 120                 125
Trp Tyr Arg Cys Arg Arg Pro Thr His Leu Ser Ala Val Val Cys Val
    130                 135                 140
Leu Leu Trp Gly Leu Ser Leu Leu Phe Ser Met Leu Glu Trp Arg Phe
145                 150                 155                 160
Cys Asp Phe Leu Phe Ser Gly Ala Asp Ser Ser Trp Cys Glu Thr Ser
                165                 170                 175
```

```
Asp Phe Ile Pro Val Ala Trp Leu Ile Phe Leu Cys Val Val Leu Cys
            180                 185                 190
Val Ser Ser Leu Val Leu Leu Val Arg Ile Leu Cys Gly Ser Arg Lys
        195                 200                 205
Met Pro Leu Thr Arg Leu Tyr Val Thr Ile Leu Leu Thr Val Leu Val
    210                 215                 220
Phe Leu Leu Cys Gly Leu Pro Phe Gly Ile Leu Gly Ala Leu Ile Tyr
225                 230                 235                 240
Arg Met His Leu Asn Leu Glu Val Leu Tyr Cys His Val Tyr Leu Val
                245                 250                 255
Cys Met Ser Leu Ser Ser Leu Asn Ser Ser Ala Asn Pro Ile Ile Tyr
            260                 265                 270
Phe Phe Val Gly Ser Phe Arg Gln Arg Gln Asn Arg Gln Asn Leu Lys
        275                 280                 285
Leu Val Leu Gln Arg Ala Leu Gln Asp Lys Pro Glu Val Asp Lys Gly
    290                 295                 300
Glu Gly Gln Leu Pro Glu Glu Ser Leu Glu Leu Ser Gly Ser Arg Leu
305                 310                 315                 320
Gly Pro
```

<210> 34
<211> 1540
<212> DNA
<213> Homo sapiens

<400> 34

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aggcacacct ggggaaaggt gcacgggggc accaccttgg tggccagttg atgccaccca 60
aggaccagca tagggccaaa gatcacccga ggtcacctgc ctcctccaca aagatgccgt 120
cttaggcaga gaaggtggtt gggagaaagc tttcatattc aaatgagatt cctgttatcc 180
acccatagat aaccagctta aagcagggta gggctaaaag ctaatatttt cccccaacca 240
gataatctgc tataaacaaa taaattgcat cttccagcgg ggttgcattg tgagatccag 300
gacacaggtg ttgtggggag ttttgacatg cagggaagtg acccccacat gcagctgcaa 360
agtccttggg gctcccccaa gaaggcgggc cagacacttg gcagggacga ggtgggaggc 420
agctcacggc tcgggaatct ccagggcatg ggctcgcaca ggtgggaagc acctgtgggc 480
ggctctcaag cccccatctc attggtgccc acggtgggcg tctccccacc ttccagctcg 540
ggctcctcgc gaagcgcctg ttggagcaca gtccccaggg acctggtggg cagcctgtgg 600
ctctccggct gcccaccagg aagtagatga cggggttggc gctgctgctt acggacgagg 660
agaggcgtga caagctgaag cacaggacct gcatctcggg cggcaggctc aaccagtaga 720
gcacaaacca gtagatgctc agaggcaggg aacagatgag gaacaccagg acagaggcca 780
ggaccaccac gaacagccgt gtgggctgcc gccgccactg ctgggagctc ctccgcaccc 840
agacaaagag ggtcaggctg gacagagtca tcactggggt taagaccccc atgatgaggg 900
cggcctggac catgtccacc ctgaagcacc gatcttcatt gaatttcaag aacttgctgc 960
agaaggaaga ggtcaacccg ttcatcagga gacagagtgt ccacagcagg ccacacaccc 1020
aggctgacag gtgcctgggc cggtgacact tgaaccagat agggaagagg acagagagac 1080
agcgctgggt gctgatggcc gtcagcaggc tcaggcccac tgtgtaggca aagtacatca 1140
gtctcttcat cagctcgtgg accttgtcag tggtattgac caggggctgg gtttccaggc 1200
tgagcgtgga agccatgctg aagaggaaga ggaggtcggc tgccgccagg ttgaggatat 1260
agatgcagaa ggggttcctg tgcattcgaa agcccagcag ccagatcacc atgctgttgc 1320
ctgccatccc gcacaggcag gtgaacatgg ccagggagct cagcaccagg taggccgtgt 1380
gcactgtgct ccctctggaa tagtttaggg ctgactccac ggtcccactg ctattcaaag 1440
tctggttcat ccctacgaga ggaagatgta ccaatgtgaa attctgtgtt gctgggacca 1500
cgggggaccc ctgggtgccc ctcgaatttc agcttcaga                        1540
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<210> 35
<211> 409

<212> PRT
<213> Homo sapiens

<400> 35
Met Asn Gln Thr Leu Asn Ser Ser Gly Thr Val Glu Ser Ala Leu Asn
 1   5   10   15
Tyr Ser Arg Gly Ser Thr Val His Thr Ala Tyr Leu Val Leu Ser Ser
            20   25   30
Leu Ala Met Phe Thr Cys Leu Cys Gly Met Ala Gly Asn Ser Met Val
        35   40   45
Ile Trp Leu Leu Gly Phe Arg Met His Arg Asn Pro Phe Cys Ile Tyr
    50   55   60
Ile Leu Asn Leu Ala Ala Ala Asp Leu Leu Phe Leu Phe Ser Met Ala
65   70   75   80
Ser Thr Leu Ser Leu Glu Thr Gln Pro Leu Val Asn Thr Thr Asp Lys
                85   90   95
Val His Glu Leu Met Lys Arg Leu Met Tyr Phe Ala Tyr Thr Val Gly
            100   105   110
Leu Ser Leu Leu Thr Ala Ile Ser Thr Gln Arg Cys Leu Ser Val Leu
        115   120   125
Phe Pro Ile Trp Phe Lys Cys His Arg Pro Arg His Leu Ser Ala Trp
    130   135   140
Val Cys Gly Leu Leu Trp Thr Leu Cys Leu Leu Met Asn Gly Leu Thr
145   150   155   160
Ser Ser Phe Cys Ser Lys Phe Leu Lys Phe Asn Glu Asp Arg Cys Phe
                165   170   175
Arg Val Asp Met Val Gln Ala Ala Leu Ile Met Gly Val Leu Thr Pro
            180   185   190
Val Met Thr Leu Ser Ser Leu Thr Leu Phe Val Trp Val Arg Arg Ser
        195   200   205
Ser Gln Gln Trp Arg Arg Gln Pro Thr Arg Leu Phe Val Val Val Leu
    210   215   220
Ala Ser Val Leu Val Phe Leu Ile Cys Ser Leu Pro Leu Ser Ile Tyr
225   230   235   240
Trp Phe Val Leu Tyr Trp Leu Ser Leu Pro Pro Glu Met Gln Val Leu
                245   250   255
Cys Phe Ser Leu Ser Arg Leu Ser Ser Ser Val Ser Ser Ser Ala Asn
            260   265   270
Pro Val Ile Tyr Phe Leu Val Gly Ser Arg Arg Ala Thr Gly Cys Pro
        275   280   285
Pro Gly Pro Trp Gly Leu Cys Ser Asn Arg Arg Phe Ala Arg Ser Pro
    290   295   300
Ser Trp Lys Val Gly Arg Arg Pro Pro Trp Ala Pro Met Arg Trp Gly
305   310   315   320
Leu Glu Ser Arg Pro Gln Val Leu Pro Thr Cys Ala Ser Pro Cys Pro
                325   330   335
Gly Asp Ser Arg Ala Val Ser Cys Leu Pro Pro Arg Pro Cys Gln Val
            340   345   350
Ser Gly Pro Pro Ser Trp Gly Ser Pro Lys Asp Phe Ala Ala Ala Cys
        355   360   365
Gly Gly His Phe Pro Ala Cys Gln Asn Ser Pro Gln His Leu Cys Pro
    370   375   380
Gly Ser His Asn Ala Thr Pro Leu Glu Asp Ala Ile Tyr Leu Phe Ile
385   390   395   400
Ala Asp Tyr Leu Val Gly Gly Lys Tyr
                405

<210> 36
<211> 767
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (2)...(716)

<400> 36
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c cac atg gtg gcc atc gtc ccc gac ttg ctg caa ggc cgg ctg gac ttc 49
  His Met Val Ala Ile Val Pro Asp Leu Leu Gln Gly Arg Leu Asp Phe
   1               5                  10                  15

ccg ggc ttc gtg cag acc agc ctg gca acg ctg cgc ttc ttc tgc tac   97
Pro Gly Phe Val Gln Thr Ser Leu Ala Thr Leu Arg Phe Phe Cys Tyr
             20                  25                  30

atc gtg ggc ctg agt ctc ctg gcg gcc gtc agc gtg gag cag tgc ctg   145
Ile Val Gly Leu Ser Leu Leu Ala Ala Val Ser Val Glu Gln Cys Leu
         35                  40                  45

gcc gcc ctc ttc cca gcc tgg tac tcg tgc cgc cgc cca cgc cac ctg   193
Ala Ala Leu Phe Pro Ala Trp Tyr Ser Cys Arg Arg Pro Arg His Leu
     50                  55                  60

acc acc tgt gtg tgc gcc ctc acc tgg gcc ctc tgc ctg ctg ctg cac   241
Thr Thr Cys Val Cys Ala Leu Thr Trp Ala Leu Cys Leu Leu Leu His
 65                  70                  75                  80

ctg ctg ctc agc agc gcc tgc acc cag ttc ttc ggg gag ccc agc cgc   289
Leu Leu Leu Ser Ser Ala Cys Thr Gln Phe Phe Gly Glu Pro Ser Arg
                 85                  90                  95

cac ttg tgc cgg acg ctg tgg ctg gtg gca gcg gtg ctg ctg gct ctg   337
His Leu Cys Arg Thr Leu Trp Leu Val Ala Ala Val Leu Leu Ala Leu
            100                 105                 110

ctg tgt tgc acc atg tgt ggg gcc agc ctt atg ctg ctg ctg cgg gtg   385
Leu Cys Cys Thr Met Cys Gly Ala Ser Leu Met Leu Leu Leu Arg Val
        115                 120                 125

gag cga ggc ccc cag cgg ccc cca ccc cgg ggc ttc cct ggg ctc atc   433
Glu Arg Gly Pro Gln Arg Pro Pro Pro Arg Gly Phe Pro Gly Leu Ile
    130                 135                 140

ctc ctc acc gtc ctc ctc ttc ctc ttc tgc ggc ctg ccc ttc ggc atc   481
Leu Leu Thr Val Leu Leu Phe Leu Phe Cys Gly Leu Pro Phe Gly Ile
145                 150                 155                 160

tac tgg ctg tcc cgg aac ctg ctc tgg tac atc ccc cac tac ttc tac   529
Tyr Trp Leu Ser Arg Asn Leu Leu Trp Tyr Ile Pro His Tyr Phe Tyr
                165                 170                 175

cac ttc agc ttc ctc atg gcc gcc gtg cac tgc gcg gcc aag ccc gtc   577
His Phe Ser Phe Leu Met Ala Ala Val His Cys Ala Ala Lys Pro Val
```

```
            180                 185                 190

gtc tac ttc tgc ctg ggc agt gcc cag ggc cgc agg ctg ccc ctc cgg   625
Val Tyr Phe Cys Leu Gly Ser Ala Gln Gly Arg Arg Leu Pro Leu Arg
        195                 200                 205

ctg gtc ctc cag cga gcg ctg gga gac gag gct gag ctg ggg gcc gtc   673
Leu Val Leu Gln Arg Ala Leu Gly Asp Glu Ala Glu Leu Gly Ala Val
    210                 215                 220

agg gag acc tcc cgc cgg ggc ctg gtg gac ata gca gcc tga g         716
Arg Glu Thr Ser Arg Arg Gly Leu Val Asp Ile Ala Ala  *
225                 230                 235

ccctggggcc cccgacccca gctgcagccc ccgtgaggca agagggtgac t          767

<210> 37
<211> 237
<212> PRT
<213> Homo sapiens

<400> 37
His Met Val Ala Ile Val Pro Asp Leu Leu Gln Gly Arg Leu Asp Phe
 1               5                  10                  15
Pro Gly Phe Val Gln Thr Ser Leu Ala Thr Leu Arg Phe Phe Cys Tyr
            20                  25                  30
Ile Val Gly Leu Ser Leu Leu Ala Ala Val Ser Val Glu Gln Cys Leu
        35                  40                  45
Ala Ala Leu Phe Pro Ala Trp Tyr Ser Cys Arg Arg Pro Arg His Leu
    50                  55                  60
Thr Thr Cys Val Cys Ala Leu Thr Trp Ala Leu Cys Leu Leu Leu His
65                  70                  75                  80
Leu Leu Leu Ser Ser Ala Cys Thr Gln Phe Phe Gly Glu Pro Ser Arg
                85                  90                  95
His Leu Cys Arg Thr Leu Trp Leu Val Ala Ala Val Leu Leu Ala Leu
            100                 105                 110
Leu Cys Cys Thr Met Cys Gly Ala Ser Leu Met Leu Leu Leu Arg Val
        115                 120                 125
Glu Arg Gly Pro Gln Arg Pro Pro Pro Arg Gly Phe Pro Gly Leu Ile
    130                 135                 140
Leu Leu Thr Val Leu Leu Phe Leu Phe Cys Gly Leu Pro Phe Gly Ile
145                 150                 155                 160
Tyr Trp Leu Ser Arg Asn Leu Leu Trp Tyr Ile Pro His Tyr Phe Tyr
                165                 170                 175
His Phe Ser Phe Leu Met Ala Ala Val His Cys Ala Ala Lys Pro Val
            180                 185                 190
Val Tyr Phe Cys Leu Gly Ser Ala Gln Gly Arg Arg Leu Pro Leu Arg
        195                 200                 205
Leu Val Leu Gln Arg Ala Leu Gly Asp Glu Ala Glu Leu Gly Ala Val
    210                 215                 220
Arg Glu Thr Ser Arg Arg Gly Leu Val Asp Ile Ala Ala
225                 230                 235


<210> 38
<211> 1361
<212> DNA
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<213> Mus musculus

<220>
<221> CDS
<222> (48)...(1064)

<400> 38
tctttttttt ttttcattgc agaactgaga ttgcaccact cctgaaa atg gac tta 56
Met Asp Leu
1

gtc atc caa gac tgg acc att aat att aca gca ctg aaa gaa agc aat 104
Val Ile Gln Asp Trp Thr Ile Asn Ile Thr Ala Leu Lys Glu Ser Asn
5 10 15

gac aat gga ata tca ttt tgt gaa gtt gtg tct cgt acc atg act ttt 152
Asp Asn Gly Ile Ser Phe Cys Glu Val Val Ser Arg Thr Met Thr Phe
20 25 30 35

ctt tcc ctc atc att gcc tta gtt ggg ctg gtt gga aat gcc aca gtg 200
Leu Ser Leu Ile Ile Ala Leu Val Gly Leu Val Gly Asn Ala Thr Val
40 45 50

tta tgg ttt ctg ggc ttc cag atg agc agg aat gcc ttc tct gtc tac 248
Leu Trp Phe Leu Gly Phe Gln Met Ser Arg Asn Ala Phe Ser Val Tyr
55 60 65

atc ctc aac ctt gct ggt gct gac ttt gtc ttc atg tgc ttt caa att 296
Ile Leu Asn Leu Ala Gly Ala Asp Phe Val Phe Met Cys Phe Gln Ile
70 75 80

gta cat tgt ttt tat att atc tta gac atc tac ttc atc ccc act aat 344
Val His Cys Phe Tyr Ile Ile Leu Asp Ile Tyr Phe Ile Pro Thr Asn
85 90 95

ttt ttt tca tct tac act atg gtg tta aac att gct tac ctt agt ggt 392
Phe Phe Ser Ser Tyr Thr Met Val Leu Asn Ile Ala Tyr Leu Ser Gly
100 105 110 115

ctg agc atc ctc act gtc att agc act gaa cgc ttc cta tct gtc atg 440
Leu Ser Ile Leu Thr Val Ile Ser Thr Glu Arg Phe Leu Ser Val Met
120 125 130

tgg ccc atc tgg tac cgc tgc caa cgc cca agg cac aca tca gct gtc 488
Trp Pro Ile Trp Tyr Arg Cys Gln Arg Pro Arg His Thr Ser Ala Val
135 140 145

ata tgt act gtg ctt tgg gtc ttg tcc ctg gtg ttg agc ctc ctg gaa 536
Ile Cys Thr Val Leu Trp Val Leu Ser Leu Val Leu Ser Leu Leu Glu
150 155 160

gga aag gaa tgt ggc ttc cta tat tac act agt ggc cct ggt ttg tgt 584
Gly Lys Glu Cys Gly Phe Leu Tyr Tyr Thr Ser Gly Pro Gly Leu Cys
165 170 175

aag aca ttt gat tta atc act act gca tgg tta att gtt tta ttt gtg 632
Lys Thr Phe Asp Leu Ile Thr Thr Ala Trp Leu Ile Val Leu Phe Val

```
180                 185                 190                 195

gtt ctc ttg gga tcc agt ctg gcc ttg gtg ctt acc atc ttc tgt ggc   680
Val Leu Leu Gly Ser Ser Leu Ala Leu Val Leu Thr Ile Phe Cys Gly
                200                 205                 210

tta cac aag gtt cct gtg acc agg ttg tat gtg acc att gtg ttt aca   728
Leu His Lys Val Pro Val Thr Arg Leu Tyr Val Thr Ile Val Phe Thr
            215                 220                 225

gtg ctt gtc ttc ctg atc ttt ggt ctg ccc tat ggg atc tac tgg ttc   776
Val Leu Val Phe Leu Ile Phe Gly Leu Pro Tyr Gly Ile Tyr Trp Phe
        230                 235                 240

ctc tta gag tgg att agg gaa ttt cat gat aat aaa cct tgt ggt ttt   824
Leu Leu Glu Trp Ile Arg Glu Phe His Asp Asn Lys Pro Cys Gly Phe
    245                 250                 255

cgt aac gtg aca ata ttt ctg tcc tgt att aac agc tgt gcc aac ccc   872
Arg Asn Val Thr Ile Phe Leu Ser Cys Ile Asn Ser Cys Ala Asn Pro
260                 265                 270                 275

atc att tac ttc ctt gtt ggc tcc att agg cac cat cgg ttt caa cgg   920
Ile Ile Tyr Phe Leu Val Gly Ser Ile Arg His His Arg Phe Gln Arg
                280                 285                 290

aag act ctc aag ctt ctt ctg cag aga gcc atg caa gac tct cct gag   968
Lys Thr Leu Lys Leu Leu Leu Gln Arg Ala Met Gln Asp Ser Pro Glu
            295                 300                 305

gag gaa gaa tgt gga gag atg ggt tcc tca aga aga cct aga gaa ata   1016
Glu Glu Glu Cys Gly Glu Met Gly Ser Ser Arg Arg Pro Arg Glu Ile
        310                 315                 320

aaa act gtc tgg aag gga ctg aga gct gct ttg atc agg cat aaa tag   1064
Lys Thr Val Trp Lys Gly Leu Arg Ala Ala Leu Ile Arg His Lys  *
    325                 330                 335

ctttgaagag aactatgttt ttatcacttt gtggcatttt cataatgttg tttagttgat 1124
gacccaaggt taactcagtt ggggaagtag tcaatgttgt agaagttgat tgatattgaa 1184
cttgttataa atactgagta cagtattttt gcagctatct tgctcagagc tttaccaact 1244
ccatttgatg ggactcctta taagctctat ggggtccagg agaggtgttg accacaattg 1304
acaaatccct cttcagaaga aaactcaaga aagtgcaatg aaaagttata tttcttt    1361
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<210> 39
<211> 338
<212> PRT
<213> Mus musculus

<400> 39

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Met Asp Leu Val Ile Gln Asp Trp Thr Ile Asn Ile Thr Ala Leu Lys
 1               5                  10                  15
Glu Ser Asn Asp Asn Gly Ile Ser Phe Cys Glu Val Val Ser Arg Thr
            20                  25                  30
Met Thr Phe Leu Ser Leu Ile Ile Ala Leu Val Gly Leu Val Gly Asn
        35                  40                  45
Ala Thr Val Leu Trp Phe Leu Gly Phe Gln Met Ser Arg Asn Ala Phe
```

```
    50                  55                  60
Ser Val Tyr Ile Leu Asn Leu Ala Gly Ala Asp Phe Val Phe Met Cys
65                  70                  75                  80
Phe Gln Ile Val His Cys Phe Tyr Ile Ile Leu Asp Ile Tyr Phe Ile
                85                  90                  95
Pro Thr Asn Phe Phe Ser Ser Tyr Thr Met Val Leu Asn Ile Ala Tyr
            100                 105                 110
Leu Ser Gly Leu Ser Ile Leu Thr Val Ile Ser Thr Glu Arg Phe Leu
        115                 120                 125
Ser Val Met Trp Pro Ile Trp Tyr Arg Cys Gln Arg Pro Arg His Thr
    130                 135                 140
Ser Ala Val Ile Cys Thr Val Leu Trp Val Leu Ser Leu Val Leu Ser
145                 150                 155                 160
Leu Leu Glu Gly Lys Glu Cys Gly Phe Leu Tyr Tyr Thr Ser Gly Pro
                165                 170                 175
Gly Leu Cys Lys Thr Phe Asp Leu Ile Thr Thr Ala Trp Leu Ile Val
            180                 185                 190
Leu Phe Val Val Leu Leu Gly Ser Ser Leu Ala Leu Val Leu Thr Ile
        195                 200                 205
Phe Cys Gly Leu His Lys Val Pro Val Thr Arg Leu Tyr Val Thr Ile
    210                 215                 220
Val Phe Thr Val Leu Val Phe Leu Ile Phe Gly Leu Pro Tyr Gly Ile
225                 230                 235                 240
Tyr Trp Phe Leu Leu Glu Trp Ile Arg Glu Phe His Asp Asn Lys Pro
                245                 250                 255
Cys Gly Phe Arg Asn Val Thr Ile Phe Leu Ser Cys Ile Asn Ser Cys
            260                 265                 270
Ala Asn Pro Ile Ile Tyr Phe Leu Val Gly Ser Ile Arg His His Arg
        275                 280                 285
Phe Gln Arg Lys Thr Leu Lys Leu Leu Leu Gln Arg Ala Met Gln Asp
    290                 295                 300
Ser Pro Glu Glu Glu Glu Cys Gly Glu Met Gly Ser Ser Arg Arg Pro
305                 310                 315                 320
Arg Glu Ile Lys Thr Val Trp Lys Gly Leu Arg Ala Ala Leu Ile Arg
                325                 330                 335
His Lys
```

<210> 40
<211> 1278
<212> DNA
<213> Mus musculus

<400> 40

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atttcctaat caagaatcta agcacctcag cctggaaaac gaacatcaca gtgctgaatg 60
gaagctacta catcgatact tcagtttgtg tcaccaggaa ccaagccatg attttgcttt 120
ccatcatcat ttccctggtt gggatgggac taaatgccat agtgctgtgg ttcctgggca 180
tccgtatgca cacgaatgcc ttcactgtct acattctcaa cctggctatg gctgactttc 240
tttacctgtg ctctcagttt gtaatttgtc ttcttattgc cttttatatc ttctactcaa 300
ttgacatcaa catccctttg gttctttatg ttgtgccaat atttgcttat ctttcaggtc 360
tgagcattct cagcaccatt agcattgagc gctgcttgtc tgtaatatgg cccatttggt 420
atcgctgtaa acgtccaaga cacacatcag ctatcacatg ttttgtgctt tgggttatgt 480
ccttattgtt gggtctcctg gaagggaagg catgtggctt actgtttaat agctttgact 540
cttattggtg tgaaacattt gatgttatca ctaatatatg gtcagttgtt ttttttggtg 600
ttctctgtgg gtctagcctc accctgcttg tcaggatctt ctgtggctca cagcgaattc 660
ctatgaccag gctgtatgtg actattacac tcacagtctt ggtcttcctg atctttggtc 720
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ttccctttgg gatctattgg atactctatc agtggattag caatttttat tatgttgaaa 780
tttgtaattt ttatcttgag atactattcc tatcctgtgt taacagctgt atgaacccca 840
tcatttattt ccttgttggc tccattaggc accgaaggtt caggcggaag actctcaagc 900
tacttctgca gagagccatg caagacaccc ctgaggagga acaaagtgga aataagagtt 960
cttcagaaca ccctgaagaa ctggaaactg ttcagagctg cagctgacaa ctgcttgatc 1020
agacaaaaat ggttttgatg gaaatacttt ttcttatccg tgtggaccat ttttacaacc 1080
tttattcagt ttgttatctc atcttcaatt gtttaattag gacaataatt tttgtaaaag 1140
ttgagagaaa tgggtcttgt catactaata ctgaatgtag catttctgaa gctgtgttac 1200
ttagggattt accatctcct tttcatggga ctccttgtaa gtattctgtg gtagagaact 1260
tctcctattg ttgacaaa 1278

<210> 41
<211> 338
<212> PRT
<213> Mus musculus

<400> 41
Met Ser Gly Asp Phe Leu Ile Lys Asn Leu Ser Thr Ser Ala Trp Lys
 1   5   10   15
Thr Asn Ile Thr Val Leu Asn Gly Ser Tyr Tyr Ile Asp Thr Ser Val
            20   25   30
Cys Val Thr Arg Asn Gln Ala Met Ile Leu Leu Ser Ile Ile Ile Ser
        35   40   45
Leu Val Gly Met Gly Leu Asn Ala Ile Val Leu Trp Phe Leu Gly Ile
    50   55   60
Arg Met His Thr Asn Ala Phe Thr Val Tyr Ile Leu Asn Leu Ala Met
65   70   75   80
Ala Asp Phe Leu Tyr Leu Cys Ser Gln Phe Val Ile Cys Leu Leu Ile
                85   90   95
Ala Phe Tyr Ile Phe Tyr Ser Ile Asp Ile Asn Ile Pro Leu Val Leu
            100   105   110
Tyr Val Val Pro Ile Phe Ala Tyr Leu Ser Gly Leu Ser Ile Leu Ser
        115   120   125
Thr Ile Ser Ile Glu Arg Cys Leu Ser Val Ile Trp Pro Ile Trp Tyr
    130   135   140
Arg Cys Lys Arg Pro Arg His Thr Ser Ala Ile Thr Cys Phe Val Leu
145   150   155   160
Trp Val Met Ser Leu Leu Leu Gly Leu Leu Glu Gly Lys Ala Cys Gly
                165   170   175
Leu Leu Phe Asn Ser Phe Asp Ser Tyr Trp Cys Glu Thr Phe Asp Val
            180   185   190
Ile Thr Asn Ile Trp Ser Val Val Phe Phe Gly Val Leu Cys Gly Ser
        195   200   205
Ser Leu Thr Leu Leu Val Arg Ile Phe Cys Gly Ser Gln Arg Ile Pro
    210   215   220
Met Thr Arg Leu Tyr Val Thr Ile Thr Leu Thr Val Leu Val Phe Leu
225   230   235   240
Ile Phe Gly Leu Pro Phe Gly Ile Tyr Trp Ile Leu Tyr Gln Trp Ile
                245   250   255
Ser Asn Phe Tyr Tyr Val Glu Ile Cys Asn Phe Tyr Leu Glu Ile Leu
            260   265   270
Phe Leu Ser Cys Val Asn Ser Cys Met Asn Pro Ile Ile Tyr Phe Leu
        275   280   285
Val Gly Ser Ile Arg His Arg Arg Phe Arg Arg Lys Thr Leu Lys Leu
    290   295   300
Leu Leu Gln Arg Ala Met Gln Asp Thr Pro Glu Glu Glu Gln Ser Gly
305   310   315   320

```
Asn Lys Ser Ser Ser Glu His Pro Glu Glu Leu Glu Thr Val Gln Ser
                325                 330                 335
Cys Ser
```

<210> 42
<211> 1009
<212> DNA
<213> Mus musculus

<400> 42
ttttctaagc atggctctaa gaacctcact aataaccacc acagcaccgg ataaaaccag 60
ccttccaatt tcaatttgta tcatcaagtt ccaagtcatg aatttgcttt ccatcaccat 120
ttcccctgtt gggatggtac tgaatatcat agtgctgtgg ttcctgggct tccagatatg 180
caggaatgcc ttctctgcct acatcctcaa cctggctgtg gctgattttc tcttcctgtg 240
ttctcattct atattttctt ttcttattgt ctgcaaactg cactattttt tattctacat 300
tagacagctt ttggatactg tgacaatgtt tgcttatgtt tttggcctga gcattaccac 360
catcattagc attgagtgct gcctgtctat catgtggccc atctggtatc actgccaacg 420
tccaagacac acatcagctg tcatttgtgt cttgctttgg gctctatctc tgctgtttcc 480
tgctctgcag atggaaaaat gtagcgtcct gtttaatact tttgaatatt cttggtgtgg 540
gataatcaat ataatctctg gtgcatggtt agttgtttta tttgtggttc tctgtgggtt 600
cagcctcatc ctgctcctca ggatctcctg tggatcacag cagattcctg tgaccaggct 660
gaatgtaact attgcactca gagtgctact cctcctgatc tttggtattc cctttgggat 720
cttctggata gttgacaaat ggaatgaaga aaatttttc gttagagctt gtggtttttc 780
acatcatata ctatacgtat actgtattaa catctgtgtc aatgctacca tatacttcct 840
tgttggctcc attaggcatg gcaagtttca gaagatgact ctgaagctga ttctgcagag 900
agctatacag ggcacccccg aggaagaagg tggagagagg ggtccttaag gaaatactga 960
agaactggga acagtctagt gcagcaaccg agagctgctt taataataa 1009

<210> 43
<211> 312
<212> PRT
<213> Mus musculus

<400> 43
```
Met Ala Leu Arg Thr Ser Leu Ile Thr Thr Thr Ala Pro Asp Lys Thr
 1               5                  10                  15
Ser Leu Pro Ile Ser Ile Cys Ile Ile Lys Phe Gln Val Met Asn Leu
            20                  25                  30
Leu Ser Ile Thr Ile Ser Pro Val Gly Met Val Leu Asn Ile Ile Val
        35                  40                  45
Leu Trp Phe Leu Gly Phe Gln Ile Cys Arg Asn Ala Phe Ser Ala Tyr
    50                  55                  60
Ile Leu Asn Leu Ala Val Ala Asp Phe Leu Phe Leu Cys Ser His Ser
65                  70                  75                  80
Ile Phe Ser Phe Leu Ile Val Cys Lys Leu His Tyr Phe Leu Phe Tyr
                85                  90                  95
Ile Arg Gln Leu Leu Asp Thr Val Thr Met Phe Ala Tyr Val Phe Gly
            100                 105                 110
Leu Ser Ile Thr Thr Ile Ile Ser Ile Glu Cys Cys Leu Ser Ile Met
        115                 120                 125
Trp Pro Ile Trp Tyr His Cys Gln Arg Pro Arg His Thr Ser Ala Val
    130                 135                 140
Ile Cys Val Leu Leu Trp Ala Leu Ser Leu Leu Phe Pro Ala Leu Gln
145                 150                 155                 160
Met Glu Lys Cys Ser Val Leu Phe Asn Thr Phe Glu Tyr Ser Trp Cys
```

```
                165                 170                 175
Gly Ile Ile Asn Ile Ile Ser Gly Ala Trp Leu Val Val Leu Phe Val
            180                 185                 190
Val Leu Cys Gly Phe Ser Leu Ile Leu Leu Leu Arg Ile Ser Cys Gly
        195                 200                 205
Ser Gln Gln Ile Pro Val Thr Arg Leu Asn Val Thr Ile Ala Leu Arg
    210                 215                 220
Val Leu Leu Leu Leu Ile Phe Gly Ile Pro Phe Gly Ile Phe Trp Ile
225                 230                 235                 240
Val Asp Lys Trp Asn Glu Glu Asn Phe Phe Val Arg Ala Cys Gly Phe
                245                 250                 255
Ser His His Ile Leu Tyr Val Tyr Cys Ile Asn Ile Cys Val Asn Ala
            260                 265                 270
Thr Ile Tyr Phe Leu Val Gly Ser Ile Arg His Gly Lys Phe Gln Lys
        275                 280                 285
Met Thr Leu Lys Leu Ile Leu Gln Arg Ala Ile Gln Gly Thr Pro Glu
    290                 295                 300
Glu Glu Gly Gly Glu Arg Gly Pro
305                 310
```

<210> 44
<211> 1219
<212> DNA
<213> Mus musculus

<400> 44

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tttatggacc tgtgccagat attcctacat aatcacatgg tcctgactga gactatcttg 60
tgttcatatc tcgatttctt tgcaggaatg ccagtggaaa attcctaagc atgggtacaa 120
ccaccctggc ctggaacatt aacaacaccg ctgaaaatgg aagttacact gaaatgttct 180
cctgtatcac caagttcaat accctgaatt ttcttactgt catcatagct gtggttggcc 240
tggcaggaaa cggcatagtg ctatggcttc tagccttcca cctgcatagg aatgccttct 300
ctgtctatgt cctcaatctg gctggtgctg atttcttgta ccttttcact caagttgtgc 360
attccctgga atgtgtcctt cagttagata ataactcctt ttatattctc ctcattgtaa 420
caatgtttgc ttaccttgca ggtttgtgta tgattgcagc catcagtgct gaacgctgcc 480
tatctgttat gtggcctatc tggtatcact gccaaagacc aagacacaca tcagccatca 540
tgtgtgctct ggtctgggtt tcctctctat tgttgagcct cgtggtaggg ctaggctgtg 600
gttttctgtt cagttattat gattattatt tctgtattac tttgaatttt atcactgctg 660
catttttaat agtgttatct gtggttcttt ctgtatctag cctggccctg ttggtgaaga 720
ttgtgtgggg gtcacacagg attcctgtga ccaggttctt tgtgaccatt gctctcacag 780
tggtggtctt catatacttt ggcatgccct ttggtatctg ctggttcctc ttatcaagga 840
ttatggagtt tgatagcatt ttctttaaca atgtttatga aataatagaa ttcctgtcct 900
gtgttaacag ctgtgccaat cccatcattt acttccttgt tggctccatt agacaacaca 960
ggttgcgatg gcagtctctg aagctacttc ttcagagagc catgcaggac actcctgagg 1020
aagagagtgg agagaggggt ccttcgcaaa ggtctgggga actggaaaca gtctagtaca 1080
gtagttgagt gagtccctgg tcaaacatag tttctgtgag agtcaatttt gcctttatct 1140
atataagcaa ttttcataat ttgtttaatc agtagagaat atagtcattt tatagaaatt 1200
aggagaaatg agcttgtta                                          1219
```

<210> 45
<211> 321
<212> PRT
<213> Mus musculus

<400> 45

```
Met Gly Thr Thr Thr Leu Ala Trp Asn Ile Asn Asn Thr Ala Glu Asn
 1               5                  10                  15
```

```
Gly Ser Tyr Thr Glu Met Phe Ser Cys Ile Thr Lys Phe Asn Thr Leu
            20                  25                  30
Asn Phe Leu Thr Val Ile Ile Ala Val Val Gly Leu Ala Gly Asn Gly
        35                  40                  45
Ile Val Leu Trp Leu Leu Ala Phe His Leu His Arg Asn Ala Phe Ser
    50                  55                  60
Val Tyr Val Leu Asn Leu Ala Gly Ala Asp Phe Leu Tyr Leu Phe Thr
65                  70                  75                  80
Gln Val Val His Ser Leu Glu Cys Val Leu Gln Leu Asp Asn Asn Ser
                85                  90                  95
Phe Tyr Ile Leu Leu Ile Val Thr Met Phe Ala Tyr Leu Ala Gly Leu
            100                 105                 110
Cys Met Ile Ala Ala Ile Ser Ala Glu Arg Cys Leu Ser Val Met Trp
        115                 120                 125
Pro Ile Trp Tyr His Cys Gln Arg Pro Arg His Thr Ser Ala Ile Met
    130                 135                 140
Cys Ala Leu Val Trp Val Ser Ser Leu Leu Leu Ser Leu Val Val Gly
145                 150                 155                 160
Leu Gly Cys Gly Phe Leu Phe Ser Tyr Tyr Asp Tyr Tyr Phe Cys Ile
                165                 170                 175
Thr Leu Asn Phe Ile Thr Ala Ala Phe Leu Ile Val Leu Ser Val Val
            180                 185                 190
Leu Ser Val Ser Ser Leu Ala Leu Leu Val Lys Ile Val Trp Gly Ser
        195                 200                 205
His Arg Ile Pro Val Thr Arg Phe Phe Val Thr Ile Ala Leu Thr Val
    210                 215                 220
Val Val Phe Ile Tyr Phe Gly Met Pro Phe Gly Ile Cys Trp Phe Leu
225                 230                 235                 240
Leu Ser Arg Ile Met Glu Phe Asp Ser Ile Phe Phe Asn Asn Val Tyr
                245                 250                 255
Glu Ile Ile Glu Phe Leu Ser Cys Val Asn Ser Cys Ala Asn Pro Ile
            260                 265                 270
Ile Tyr Phe Leu Val Gly Ser Ile Arg Gln His Arg Leu Arg Trp Gln
        275                 280                 285
Ser Leu Lys Leu Leu Leu Gln Arg Ala Met Gln Asp Thr Pro Glu Glu
    290                 295                 300
Glu Ser Gly Glu Arg Gly Pro Ser Gln Arg Ser Gly Glu Leu Glu Thr
305                 310                 315                 320
Val
```

<210> 46
<211> 1281
<212> DNA
<213> Mus musculus

<400> 46
atggtcctga cagagagtat catgtgttca tatctctatt tttttgcggg aacaccactg 60
gaaacttcct aaacatgggt ctaaccactc cagcctggaa cattaacaac acagtagtga 120
atggaagtaa caatactgaa catttctcct gtgtcagcaa gttcaatacc ctgaactttc 180
ttactgtcat cattgccatg tttggcctgg caggaaatgc catagtccta tggcttctag 240
ccttccacct gcctaggaat gccttctctg tctatgtctg caacttggct tgtgctgatt 300
tcttgcaact ttgcactcag attttaggtt ccctggaatg tttccttcag ttaaatagga 360
gacacacttt ttttctcacc gttgtattta tgtttgctta ccttgcaggt ttgtgtatga 420
ttgcagccat cagtgttgag cgctctctat ctgttatgtg gcccatctgg tatcactgcc 480
aaagaccaag acatacatca tccatcatgt gtgctctgct ctgggctttc tgtctactgt 540

```
tgaatttcct attaggggaa ggctgtggcc ttctgttcag tgatcctaaa tattatttct 600
gtattacttg tgccttaatc actactgcac ttataatatt attaactgtg gttccttctg 660
tgtccagcct ggccctgttg gtcaagatga tctgtggatc acacaggatt cctgtgacca 720
ggttctatgt gaccattgct ctcacattgg tggtcttcat attcttgggt ctgccctttg 780
ggatttactc atctttcttg ataatgttta aggagtttca aagcattttc tcttaccatg 840
tccttgaagt gacaatattc ctgtcctgtg ttaacagctg tgccaatccc atcatttact 900
ttcttgttgg ctccattagg cagcacaggt tgcaatggca gtctctgaag ctacttcttc 960
agagagccat gcaggacact cctgaggaag atagtggaga gagggttccc tcacaaaggt 1020
ctggggaact ggaaagtgtt tagtgcagta gttgagtgag tctttgatca gacatggtta 1080
ctctgagagt cagttttgcc tttgtttatg taagcaattt tcacaatctt gtacaatttg 1140
taaagaaata gtcattttat agaaattggg agaaaggggc ttgttacaca gaaactgagt 1200
gcaacaccat aaagctgtct tatgtgggtc tcattacatt ctcttgtgat ataagccttg 1260
taatcacttg ggaacaaaac t                                          1281
```

<210> 47
<211> 322
<212> PRT
<213> Mus musculus

<400> 47

```
Met Gly Leu Thr Thr Pro Ala Trp Asn Ile Asn Asn Thr Val Val Asn
 1               5                  10                  15
Gly Ser Asn Asn Thr Glu His Phe Ser Cys Val Ser Lys Phe Asn Thr
            20                  25                  30
Leu Asn Phe Leu Thr Val Ile Ile Ala Met Phe Gly Leu Ala Gly Asn
        35                  40                  45
Ala Ile Val Leu Trp Leu Leu Ala Phe His Leu Pro Arg Asn Ala Phe
    50                  55                  60
Ser Val Tyr Val Cys Asn Leu Ala Cys Ala Asp Phe Leu Gln Leu Cys
65                  70                  75                  80
Thr Gln Ile Leu Gly Ser Leu Glu Cys Phe Leu Gln Leu Asn Arg Arg
                85                  90                  95
His Thr Phe Phe Leu Thr Val Val Phe Met Phe Ala Tyr Leu Ala Gly
            100                 105                 110
Leu Cys Met Ile Ala Ala Ile Ser Val Glu Arg Ser Leu Ser Val Met
        115                 120                 125
Trp Pro Ile Trp Tyr His Cys Gln Arg Pro Arg His Thr Ser Ser Ile
    130                 135                 140
Met Cys Ala Leu Leu Trp Ala Phe Cys Leu Leu Leu Asn Phe Leu Leu
145                 150                 155                 160
Gly Glu Gly Cys Gly Leu Leu Phe Ser Asp Pro Lys Tyr Tyr Phe Cys
                165                 170                 175
Ile Thr Cys Ala Leu Ile Thr Thr Ala Leu Ile Ile Leu Leu Thr Val
            180                 185                 190
Val Pro Ser Val Ser Ser Leu Ala Leu Leu Val Lys Met Ile Cys Gly
        195                 200                 205
Ser His Arg Ile Pro Val Thr Arg Phe Tyr Val Thr Ile Ala Leu Thr
    210                 215                 220
Leu Val Val Phe Ile Phe Leu Gly Leu Pro Phe Gly Ile Tyr Ser Ser
225                 230                 235                 240
Phe Leu Ile Met Phe Lys Glu Phe Gln Ser Ile Phe Ser Tyr His Val
                245                 250                 255
Leu Glu Val Thr Ile Phe Leu Ser Cys Val Asn Ser Cys Ala Asn Pro
            260                 265                 270
Ile Ile Tyr Phe Leu Val Gly Ser Ile Arg Gln His Arg Leu Gln Trp
        275                 280                 285
Gln Ser Leu Lys Leu Leu Leu Gln Arg Ala Met Gln Asp Thr Pro Glu
```

```
    290                 295                 300
Glu Asp Ser Gly Glu Arg Val Pro Ser Gln Arg Ser Gly Glu Leu Glu
305                 310                 315                 320
Ser Val
```

<210> 48
<211> 1280
<212> DNA
<213> Mus musculus

<400> 48

```
ccccactagt tcataacaca gaatttaaca tgggttcttc ttccacccat aggaatgaac 60
tccactcttg acagcagccc agctccaggt ctgaccatca gtcccaccat ggaccttgtg 120
acctggatct acttttcagt gacattcctc gccatggcca cgtgtgtggg gggggatggc 180
aggcaactca ttggtgattt ggctcctgag ctgcaatggc atgcagaggt ctcccttctg 240
tgtctatgtg ctcaacctgg cggtggctga cttcctcttc ttattctgca tggcctccat 300
gctcagcctg gaaacagggc ccctgctcat agtcaacatt tctgccaaaa tctatgaagg 360
gatgaggaga atcaagtact ttgcctatac agcaggcctg agcctgctga cagccatcag 420
cacccagcgc tgcctctccg tgcttttccc catctggtat aagtgccacc ggccccggca 480
cctgtcatca gtggtatctg gtgcactctg ggcactggcc ttcctgatga acttcctggc 540
ttctttcttc tgcgtccaat tctggcatcc caacaaacac cagtgcttca aggtggacat 600
tgttttcaac agtcttatcc tggggatctt catgccggtc atgatcctga ccagcaccat 660
cctcttcatc cgggtgcgga agaacagcct gatgcagaga cggcggcccc ggcggctgta 720
cgtggtcatc ctgacttcca tccttgtctt cctcacctgt tctctgccct tgggcatcaa 780
ctggttctta ctctactggg tggatgtgaa acgggatgtg aggctacttt atagctgcgt 840
atcacgcttc tcttcgtctt tgagcagcag tgccaacccg gtcatttact tcctcgtggg 900
cagccagaag agccaccggc tgcaggagtc cctgggtgct gtgctggggc gggcactgcg 960
ggatgagcct gagccagagg gcagagagac gccatccacg tgtactaatg atggggtctg 1020
aagggagccc aaccaggaac tcctccaaag ccccacccag cccttcccta aaagtaccca 1080
gcaagcctgc aatgcaaagg ccttgcacct caaaatgttt gggtcacgtt cctctctgcc 1140
agggagggtt caccactatc accttgtgtt cctaatctaa actaagaggt gaggcaatat 1200
atctttctgt tttacctgtt tagacacaga tcctaacttt gggtcccatc atgggcaagg 1260
ctgtctggga aatggagttt                                          1280
```

<210> 49
<211> 281
<212> PRT
<213> Mus musculus

<400> 49

```
Met Ala Gly Asn Ser Leu Val Ile Trp Leu Leu Ser Cys Asn Gly Met
 1               5                  10                  15
Gln Arg Ser Pro Phe Cys Val Tyr Val Leu Asn Leu Ala Val Ala Asp
            20                  25                  30
Phe Leu Phe Leu Phe Cys Met Ala Ser Met Leu Ser Leu Glu Thr Gly
        35                  40                  45
Pro Leu Leu Ile Val Asn Ile Ser Ala Lys Ile Tyr Glu Gly Met Arg
    50                  55                  60
Arg Ile Lys Tyr Phe Ala Tyr Thr Ala Gly Leu Ser Leu Leu Thr Ala
65                  70                  75                  80
Ile Ser Thr Gln Arg Cys Leu Ser Val Leu Phe Pro Ile Trp Tyr Lys
                85                  90                  95
Cys His Arg Pro Arg His Leu Ser Ser Val Val Ser Gly Ala Leu Trp
            100                 105                 110
Ala Leu Ala Phe Leu Met Asn Phe Leu Ala Ser Phe Phe Cys Val Gln
```

```
        115                 120                 125
Phe Trp His Pro Asn Lys His Gln Cys Phe Lys Val Asp Ile Val Phe
    130                 135                 140
Asn Ser Leu Ile Leu Gly Ile Phe Met Pro Val Met Ile Leu Thr Ser
145                 150                 155                 160
Thr Ile Leu Phe Ile Arg Val Arg Lys Asn Ser Leu Met Gln Arg Arg
                165                 170                 175
Arg Pro Arg Arg Leu Tyr Val Val Ile Leu Thr Ser Ile Leu Val Phe
            180                 185                 190
Leu Thr Cys Ser Leu Pro Leu Gly Ile Asn Trp Phe Leu Leu Tyr Trp
        195                 200                 205
Val Asp Val Lys Arg Asp Val Arg Leu Leu Tyr Ser Cys Val Ser Arg
    210                 215                 220
Phe Ser Ser Ser Leu Ser Ser Ser Ala Asn Pro Val Ile Tyr Phe Leu
225                 230                 235                 240
Val Gly Ser Gln Lys Ser His Arg Leu Gln Glu Ser Leu Gly Ala Val
                245                 250                 255
Leu Gly Arg Ala Leu Arg Asp Glu Pro Glu Pro Glu Gly Arg Glu Thr
            260                 265                 270
Pro Ser Thr Cys Thr Asn Asp Gly Val
        275                 280
```

<210> 50
<211> 1170
<212> DNA
<213> Mus musculus

<400> 50
gacttctgca gacatcagcc atgacgtccc tgagcgtgca cacagattct cccagcaccc 60
agggagaaat ggctttcaac ctgaccatcc tgtccctcac agagctcctc agcctgggcg 120
ggctgctggg caatggagtg gccctctggc tgctcaacca aaatgtctac aggaacccct 180
tctccatcta tctcttggat gtggcctgcg ccgacctcat cttcctctgc tgccacatgg 240
tggccatcat ccctgagctg ctgcaggacc agctgaactt ccctgaattt gtacatatca 300
gcctgaccat gctgcggttc ttctgctaca ttgtgggcct gagcctcctg gcggccatca 360
gcacggagca gtgcctggcc actctcttcc ctgcctggta cctgtgccgc cgcccacgct 420
acctgaccac ctgtgtgtgt gcgctcatct gggtgctctg cctgctactg gacctgctgc 480
tgagcggcgc ctgcacccag ttctttggag cacccagcta ccacctgtgt gacatgctgt 540
ggctggtggt ggcagttctc ctggctgccc tgtgctgcac catgtgtgtg accagcctgc 600
tcctgctgct gcgggtggag cgtggtccag agagacacca gcctcggggc ttccccaccc 660
tggtcctgct ggccgtcctg ctcttcctct tctgcggcct gcccttggc atcttctggc 720
tgtccaagaa cctgtcctgg cacatccccc tctacttcta tcatttcagc ttcttcatgg 780
ccagtgtgca cagtgcagcc aagcctgcca tctacttttt cttgggcagc acacctggcc 840
agaggtttcg ggaacccctc cggctggtgc tccagcgggc acttggagat gaggctgagc 900
tgggagctgg gagagaggct tcccaagggg gacttgtgga catgactgtc taagcacagt 960
gggtcacaac tgcagcttca gcccatgggg gtccagggga gctgcctgat gtaggtaaag 1020
ctgggatcag agctccatca gtaagactct tgagggacat ctttgctgat gacccagtgc 1080
tgtgtcccct gggaggattc tgggaagggg caagcagaga gtgatgcttc tgtggagggc 1140
ctggggttgt gtgtgttagg cagagctcct   1170

<210> 51
<211> 310
<212> PRT
<213> Mus musculus

<400> 51
Met Thr Ser Leu Ser Val His Thr Asp Ser Pro Ser Thr Gln Gly Glu

```
 1               5                  10                  15
Met Ala Phe Asn Leu Thr Ile Leu Ser Leu Thr Glu Leu Leu Ser Leu
            20                  25                  30
Gly Gly Leu Leu Gly Asn Gly Val Ala Leu Trp Leu Leu Asn Gln Asn
        35                  40                  45
Val Tyr Arg Asn Pro Phe Ser Ile Tyr Leu Leu Asp Val Ala Cys Ala
    50                  55                  60
Asp Leu Ile Phe Leu Cys Cys His Met Val Ala Ile Ile Pro Glu Leu
65                  70                  75                  80
Leu Gln Asp Gln Leu Asn Phe Pro Glu Phe Val His Ile Ser Leu Thr
                85                  90                  95
Met Leu Arg Phe Phe Cys Tyr Ile Val Gly Leu Ser Leu Leu Ala Ala
            100                 105                 110
Ile Ser Thr Glu Gln Cys Leu Ala Thr Leu Phe Pro Ala Trp Tyr Leu
        115                 120                 125
Cys Arg Arg Pro Arg Tyr Leu Thr Thr Cys Val Cys Ala Leu Ile Trp
    130                 135                 140
Val Leu Cys Leu Leu Leu Asp Leu Leu Leu Ser Gly Ala Cys Thr Gln
145                 150                 155                 160
Phe Phe Gly Ala Pro Ser Tyr His Leu Cys Asp Met Leu Trp Leu Val
                165                 170                 175
Val Ala Val Leu Leu Ala Ala Leu Cys Cys Thr Met Cys Val Thr Ser
            180                 185                 190
Leu Leu Leu Leu Leu Arg Val Glu Arg Gly Pro Glu Arg His Gln Pro
        195                 200                 205
Arg Gly Phe Pro Thr Leu Val Leu Leu Ala Val Leu Leu Phe Leu Phe
    210                 215                 220
Cys Gly Leu Pro Phe Gly Ile Phe Trp Leu Ser Lys Asn Leu Ser Trp
225                 230                 235                 240
His Ile Pro Leu Tyr Phe Tyr His Phe Ser Phe Phe Met Ala Ser Val
                245                 250                 255
His Ser Ala Ala Lys Pro Ala Ile Tyr Phe Phe Leu Gly Ser Thr Pro
            260                 265                 270
Gly Gln Arg Phe Arg Glu Pro Leu Arg Leu Val Leu Gln Arg Ala Leu
        275                 280                 285
Gly Asp Glu Ala Glu Leu Gly Ala Gly Arg Glu Ala Ser Gln Gly Gly
    290                 295                 300
Leu Val Asp Met Thr Val
305                 310
```

<210> 52
<211> 1519
<212> DNA
<213> Mus musculus

<400> 52
tgtgttccca gcagcaccca gtgcagggtt tctggcccta aacatytyma gcctccacaa 60
tggcactcac aacaacaaaa tccaatggac gaaacccatc ccctggaagt accagcatca 120
agattctgat cccaaacttg atgatcatca tctttggact ggtcgggctg acaggaaacg 180
ccattgtgtt ctggctcctg ggcttccact tgcgcaggaa tgccttctca gtctacatcc 240
taaacttggc cctggctgac ttcctcttcc tcctctgtcg catcatagct tccacgcaga 300
aacttctcac gttctcctca cccaacatta cctttctcat ttgcctttac accttcaggg 360
tgattctcta catcgcaggc ctgagcatgc tcactgccat cagcattgag cgctgcctgt 420
ctgtcctgtg ccccatctgg tatcgctgcc accgcccaga acacacatca actgtcatgt 480
gtgctgcaat ctgggtcctg tccctgttga tctgcattct gaataggtat ttctgcggtt 540
tcttagatac caaatatgta aatgactatg ggtgtatggc atcaaatttc tttaatgctg 600

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catacctgat gtttttgttt gtagtcctct gtgtgtccag cctggctctg ctggccaggt 660
tgttctgtgg cactgggcgg atgaagctta ccagattgta cgtgaccatc atgctgacca 720
ttttggtttt tctcctctgc gggttgccct gtggcttata ctggttcctg ttattctgga 780
ttaagaatgg ttttgctgta tttgatttta acttttatct agcatcaact gtcctgagtg 840
ctattaatag ctctgccaac cccatcattt acttcttcgt gggctcattc aggcatcggt 900
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ctgaaaacat ggtggagatg tcaagaagca aagcagagcc gtgatgaaga gcctctgcct 1020
ggacctcgga ggtagctttg gagtgagcac ttccctgctg caattgacca ctgtccactc 1080
tcctctcagc ttactgactc aacatgcctc agtggtccac caacatcttc aacagctctc 1140
cattgattta gtttttctaa ctctcccaag taatagcatt aatcagaaag tatcatgtct 1200
gcatccttct tgacattaat caaattctca aactaacttc ctctgaagct ttcttgctga 1260
ttctttggaa cttttgttgc catggaacta gcccaggtcc agaaccatga ctctcgtatc 1320
tgtgatggtt ctgtacctga atataaagac aaaggagcct agagatgatc ctgtccattc 1380
ccaaatacca cctagagagc tggtctccca ggattgcaga caagcctgtg agcacaggta 1440
agaccaccac ttctgctcaa agggacatgc ctggaactac tcaggacaca ggtacagagg 1500
agcattttgg gacaagata                                             1519
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<210> 53
<211> 303
<212> PRT
<213> Mus musculus

<400> 53

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Asn Pro Ser Pro Gly Ser Thr Ser Ile Lys Ile Leu Ile Pro Asn Leu
 1               5                  10                  15
Met Ile Ile Ile Phe Gly Leu Val Gly Leu Thr Gly Asn Ala Ile Val
            20                  25                  30
Phe Trp Leu Leu Gly Phe His Leu Arg Arg Asn Ala Phe Ser Val Tyr
        35                  40                  45
Ile Leu Asn Leu Ala Leu Ala Asp Phe Leu Phe Leu Leu Cys Arg Ile
    50                  55                  60
Ile Ala Ser Thr Gln Lys Leu Leu Thr Phe Ser Ser Pro Asn Ile Thr
65                  70                  75                  80
Phe Leu Ile Cys Leu Tyr Thr Phe Arg Val Ile Leu Tyr Ile Ala Gly
                85                  90                  95
Leu Ser Met Leu Thr Ala Ile Ser Ile Glu Arg Cys Leu Ser Val Leu
            100                 105                 110
Cys Pro Ile Trp Tyr Arg Cys His Arg Pro Glu His Thr Ser Thr Val
        115                 120                 125
Met Cys Ala Ala Ile Trp Val Leu Ser Leu Leu Ile Cys Ile Leu Asn
    130                 135                 140
Arg Tyr Phe Cys Gly Phe Leu Asp Thr Lys Tyr Val Asn Asp Tyr Gly
145                 150                 155                 160
Cys Met Ala Ser Asn Phe Phe Asn Ala Ala Tyr Leu Met Phe Leu Phe
                165                 170                 175
Val Val Leu Cys Val Ser Ser Leu Ala Leu Leu Ala Arg Leu Phe Cys
            180                 185                 190
Gly Thr Gly Arg Met Lys Leu Thr Arg Leu Tyr Val Thr Ile Met Leu
        195                 200                 205
Thr Ile Leu Val Phe Leu Leu Cys Gly Leu Pro Cys Gly Leu Tyr Trp
    210                 215                 220
Phe Leu Leu Phe Trp Ile Lys Asn Gly Phe Ala Val Phe Asp Phe Asn
225                 230                 235                 240
Phe Tyr Leu Ala Ser Thr Val Leu Ser Ala Ile Asn Ser Ser Ala Asn
                245                 250                 255
Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg His Arg Leu Lys His
            260                 265                 270
```

```
Gln Thr Leu Lys Met Val Leu Gln Ser Ala Leu Gln Asp Thr Pro Glu
        275                 280                 285
Thr Ala Glu Asn Met Val Glu Met Ser Arg Ser Lys Ala Glu Pro
    290                 295                 300
```

<210> 54
<211> 2093
<212> DNA
<213> Mus musculus

<400> 54

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tcacagacca catgaagctc aataagaagg aagaacaaag tgtaggtgtt tcagtccttc 120
ttagaaggag aacaaaatac tcacaggagc aaatatggag atacagtata gagcagagac 180
taaaggaaag gtcattcaga gactgtccca actggggatt cattccatat agagatacca 240
aacccagact ctaaattgga tgcaaacaag tgcatgccaa aaggagctag ataaggtaac 300
cctgtctcaa aaaaaaaaaa aaggctgtca cctgaaaggc cctgtcaaag gcttacaaat 360
acagaagcag atgttagtag tcaacaattg gacagagcat ggggttccta atagaggagt 420
tagaggaagg aattagggag ttgaagggat ttgcagcccc ataagaacaa caatatcaac 480
caaccggaca ctcccccaga tatcacaggg tctaagccat caacaaagga gtacacatgg 540
ctccagatgc acatatagca gaggacggcc atgtcatgca tcaatggaag aagagatcct 600
tgtacctatg aaggatcgat agatgaccca gtgtagggga atcaaggaca gaaaggttgg 660
agtggatgtg tggactggcc ggactgacag gaaatgccat tgtgttctgg ctcctgctct 720
tccacttgca caggaatgct ttctcaatct acatcttaaa tttggtcata gctgacttcc 780
ttttcctcct tggtcacatc atagcttcca caatgcaact tctcaaggtt tcctacctca 840
acattatttt tctttaccgt ttttacacaa tcatgatggt gctctacaac acaggcctga 900
ccatgctcag tgccatcaac actaagcact gcctgtctgt cctgtgtccc atctggtatc 960
gctcccactg cacaaaacac acatcaactg tcatatgtgc tgctatacgg gacctgtccc 1020
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acaatgggtg tctggcatcg aatttcttta ttaatgcata ccctgatgtt tttgtttgta 1140
gtcctactgt ctgtccactc tggctctgct ggccaggttg ttctgtggtg ctgggaagat 1200
gaaatttaca agattattcg tgaccatcat gctgacagtt ttagtttttc tcctctgtgg 1260
gttgccctct gccatctact ggttcctgtt aatctggatt aagattgatt atggtgtatt 1320
tgcttatgat gtttttctgg catcactcgt cctgagtgct gttaacagct gtgccaaccc 1380
catcatttac ttcttcgtgg gctctttcag gcatcggttg aagcaccaaa ccctcaaaat 1440
ggttctccag aatgtactgc aggacactcc tgagacagct gaaaacatgg tagagatgtc 1500
aagaggcaaa gcagagccat gatgaagagc ctctgcctgg agctcagagg tggctttgga 1560
gtgagcactg ccctgatgta cttgaccact gtccactctc ctctcagctt actgactaga 1620
catgcctcag tggtccacca tctccaagag ctctccactg actttgtttt ctacctctcc 1680
tgaataatag cattaatcag aaagtatcat gtctacatcc ttcttgacat taatcaaatt 1740
ctcatgctat cttcccctga agctttcttg ctgtttcttt gggacttttt gttgccatgg 1800
aaataacaaa ggtccagaac catgactctc ttgcctgtga ttgttctgta cctgaatgta 1860
aagataaagg agccaggaga tgatcctgta tcacggtgct ccataccaaa ataccaccaa 1920
gagagctggt ctcccaggag tgcagacaag cctgtgagca caggtaagac caccatttct 1980
gctcaaaggg acatgcctgg aaccctcagt acacaggaac agaggagcct ggaactggat 2040
atttccagtt tccatctgca ccccagagct gactctgtac cacagctctc cat          2093
```

<210> 55
<211> 282
<212> PRT
<213> Mus musculus

<400> 55

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Gly Leu Ala Gly Leu Thr Gly Asn Ala Ile Val Phe Trp Leu Leu Leu
 1               5                  10                  15
Phe His Leu His Arg Asn Ala Phe Ser Ile Tyr Ile Leu Asn Leu Val
```

```
            20                  25                  30
Ile Ala Asp Phe Leu Phe Leu Leu Gly His Ile Ile Ala Ser Thr Met
        35                  40                  45
Gln Leu Leu Lys Val Ser Tyr Leu Asn Ile Ile Phe Leu Tyr Arg Phe
    50                  55                  60
Tyr Thr Ile Met Met Val Leu Tyr Asn Thr Gly Leu Thr Met Leu Ser
65                  70                  75                  80
Ala Ile Asn Thr Lys His Cys Leu Ser Val Leu Cys Pro Ile Trp Tyr
                85                  90                  95
Arg Ser His Cys Thr Lys His Thr Ser Thr Val Ile Cys Ala Ala Ile
            100                 105                 110
Arg Asp Leu Ser Leu Leu Ile Cys Phe Leu Asn Thr Tyr Phe Cys Gly
        115                 120                 125
Leu Leu Asp Thr Lys Tyr Lys Asn Asp Asn Gly Cys Leu Ala Ser Asn
    130                 135                 140
Phe Phe Ile Asn Ala Tyr Leu Met Phe Leu Phe Val Val Leu Cys Leu
145                 150                 155                 160
Ser Thr Leu Ala Leu Leu Ala Arg Leu Phe Cys Gly Ala Gly Lys Met
                165                 170                 175
Lys Phe Thr Arg Leu Phe Val Thr Ile Met Leu Thr Val Leu Val Phe
            180                 185                 190
Leu Leu Cys Gly Leu Pro Ser Ala Ile Tyr Trp Phe Leu Leu Ile Trp
        195                 200                 205
Ile Lys Ile Asp Tyr Gly Val Phe Ala Tyr Asp Val Phe Leu Ala Ser
    210                 215                 220
Leu Val Leu Ser Ala Val Asn Ser Cys Ala Asn Pro Ile Ile Tyr Phe
225                 230                 235                 240
Phe Val Gly Ser Phe Arg His Arg Leu Lys His Gln Thr Leu Lys Met
                245                 250                 255
Val Leu Gln Asn Val Leu Gln Asp Thr Pro Glu Thr Ala Glu Asn Met
            260                 265                 270
Val Glu Met Ser Arg Gly Lys Ala Glu Pro
        275                 280
```

<210> 56
<211> 2401
<212> DNA
<213> Mus musculus

<400> 56
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cttcagacga gcactcgata gattatagta agatctgaga cttctcagag ttatgaccat 180
gttgggaatt tggttttccc aagctcagga atctgtccaa atggattgcc acaactacac 240
agagatggaa ggaaaggtag agaactttcc cagtgccatt acattctaca ggctacagga 300
gccttggctg gtcagaatgc aactttggtt ggcactcaga acaatgttaa ttttcctttt 360
caattctctc ctatctcttt ccactctgct catttgttct gttgcagcac atctgtgact 420
tccatgtatg aaagtagttt ctttttctac tctactctct caattatctt tttaattcta 480
ctatttctac tcacacatta aaatgtgtgt atgtgtgttt gtgttcatac gtgtgtgttg 540
aggctgattt tttccttatt tgctgtatat gaaactctac attctgttgt acaccccaga 600
tgtcatgtgt taaattgtat ttcatgttct gctctctaaa acctacattc aggtacagaa 660
caatcacaga caagagagtc atggttttgg acctgggcta tttccatgrc aacaaaagtt 720
tcaaagaaac agcaagaaag cttcagagga agttagcacg acaatttgat taatgtcaag 780
aaggatgcag acatgatact ttctgattaa tgcttttact caggagatgg agaaaaacta 840
agttatggaa gagctgttga aggtgttggt agaccactga ggcatgccaa gtaggtcagc 900
tgaaaggaga gtggacagtg tggtcaagtg cagcagggca gtgctcactc caaaactacc 960

```
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atgttttcag gtgtctcagg aatgtcctgc agtgcactct ggataaccat tttgagggtc 1080
tggtgctgca atcgatgcct gaaggagccc acgaagaagt aaatgatggg gttggcacag 1140
ctgttaagag cagtcaggac acttgatgcc ataaaaagac taaaatcaaa tacaataaaa 1200
acattcttaa tcttggataa caggaaccag tagatgccac agggcaaccc gcagaggaga 1260
aaaaccaaaa tggtcagcat gatggtcacg tacaatctgg taagtttcat acgcccagcg 1320
ccacagaaca acctggccag cagagccagg ctggatagac agaggaccac aaacaaaaac 1380
atcaggtatg cagcagtaaa gaagtttgat gccatacatc catagtcatt tacatatttg 1440
gtatctaaga aaacgcagaa atacttattc agaatgctga tcaacaggga caggacccag 1500
atcatagcac acgtgacagt tgatgtgtgt tctgggcggt ggcagcgata ccagatgggg 1560
cacagtacag acagacaccg ttcagtgccg atggcactga gtatgctcag gcctgcaatg 1620
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ttgagaagaa acagagtgga agctatgatg tgacagagga ggaagaggaa gtcagccaga 1740
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atcagggtgc tgatgtcaat acttccaggg atggtttcgt ccattagatt tgttgtcgac 1920
ggtgccattg atgaggcaga ggtgtttagg gccagaaacc ctgcaccggt gctgctggga 1980
acacaaagaa gaaatgaggc tttccctatg aacacacctt ttgtttttct tttccctttt 2040
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attcccatac actggagcat ctattgagcc ttcaaaggtc ctaggacctt tttttccatt 2280
gatgcatgac acagcaattc tctcatacat atacagctgg agccatgttt acttwctttg 2340
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t                                                                  2401
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<210> 57
<211> 305
<212> PRT
<213> Mus musculus

<400> 57

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Met Asp Glu Thr Ile Pro Gly Ser Ile Asp Ile Ser Thr Leu Ile Pro
 1               5                  10                  15
His Leu Met Ile Ile Ile Phe Gly Leu Val Gly Met Thr Gly Asn Ala
            20                  25                  30
Ile Val Phe Trp Leu Leu Gly Phe Arg Leu Arg Lys Asn Ala Phe Ser
        35                  40                  45
Val Tyr Ile Leu Asn Leu Ala Leu Ala Asp Phe Leu Phe Leu Leu Cys
    50                  55                  60
His Ile Ile Ala Ser Thr Leu Phe Leu Leu Lys Val Ser Tyr Pro Asn
65                  70                  75                  80
Ile Ile Phe Arg Arg Cys Phe Phe Ser Ile Met Leu Val Leu Tyr Ile
                85                  90                  95
Ala Gly Leu Ser Ile Leu Ser Ala Ile Gly Thr Glu Arg Cys Leu Ser
            100                 105                 110
Val Leu Cys Pro Ile Trp Tyr Arg Cys His Arg Pro Glu His Thr Ser
        115                 120                 125
Thr Val Thr Cys Ala Met Ile Trp Val Leu Ser Leu Leu Ile Ser Ile
    130                 135                 140
Leu Asn Lys Tyr Phe Cys Val Phe Leu Asp Thr Lys Tyr Val Asn Asp
145                 150                 155                 160
Tyr Gly Cys Met Ala Ser Asn Phe Phe Thr Ala Ala Tyr Leu Met Phe
                165                 170                 175
Leu Phe Val Val Leu Cys Leu Ser Ser Leu Ala Leu Leu Ala Arg Leu
            180                 185                 190
Phe Cys Gly Ala Gly Arg Met Lys Leu Thr Arg Leu Tyr Val Thr Ile
```

```
        195                 200                 205
Met Leu Thr Ile Leu Val Phe Leu Leu Cys Gly Leu Pro Cys Gly Ile
    210                 215                 220
Tyr Trp Phe Leu Leu Ser Lys Ile Lys Asn Val Phe Ile Val Phe Asp
225                 230                 235                 240
Phe Ser Leu Phe Met Ala Ser Ser Val Leu Thr Ala Leu Asn Ser Cys
                245                 250                 255
Ala Asn Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg His Arg Leu
            260                 265                 270
Gln His Gln Thr Leu Lys Met Val Ile Gln Ser Ala Leu Gln Asp Ile
        275                 280                 285
Pro Glu Thr Pro Glu Asn Ile Val Glu Met Ser Lys Ser Lys Ala Glu
    290                 295                 300
Pro
305
```

<210> 58
<211> 2110
<212> DNA
<213> Mus musculus

<400> 58

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atgagatggg gttttctggg aaggggcaaa agcaggaaag tggataacat ttgtaattta 120
aataaagaaa atatccaata caaaaaattt aaaaaaaaaa acacaaaacc acacaaaaaa 180
aagacaaaaa aaaagaaatt aaaagttgtg ttcatagtta atgcctcatt tttctttgtg 240
ttcccagcaa aaccagtgca gggtttctgg ccctaaacac cttcagcctt ttcaatggca 300
cccaacgaca accaatacaa tggacgaaac catccctgga cgtattgaca tcgagaccct 360
gatcccaaac ttgatgatca tcatcttcgg actggtcggg ctgacaggaa atggcattgt 420
gttctggctc ctgggcttcc gcatgcacag gaatgccttc ttagtctaca tcctaaactt 480
ggccctggct gactttctct tccttctctg tcacatcatt aattccacaa tgcttcttct 540
caaggttctc ccactcaact ggatscttgt tccattgctt taacaccatc agaacggttc 600
tatacatcac aggcctgagc atgctcagcg ccatcagcac tgagcgctgc ctgtctgtcc 660
tgtgccccat ctggtatcga tgccgtcgcc gagaaaacac atcagctgtc atgtgtgctg 720
tgatctgggt cctgtccctg ttgatctgta ttctgaatag ttatttctgt tattactctg 780
gtcccaaaga tgtaaataac tctgtgtgtc tggtatcgaa attcttcatc agtacatacc 840
caatgttttt gtttgtagtc ctctgtctgt ccaccctgac tctgctggcc aggttgttct 900
gtggtgctgg gaagaggaaa tttaccagat tattcgtgac catcatactg accattttgg 960
tttttcttct gtgtgggttg cccctgggct tctactggtt cctgttacac tgtattaagg 1020
gtagtttcag tgtactacat aatagacttt ttcaggcatc acttgtccta acttctgtta 1080
acagctgtgc caaccccatc atttacttct tcgtgggctc cttcagggat cgggtgaagc 1140
accagaccct caaaatggta ctccagaatg cactgcagga cactcctgag acacctgaaa 1200
acaaggtgga gatgtcaaga agtaaagcag agccatgatg aagagactcg gccaggacct 1260
cagaggtagc tttggagtsa gwactgccct gctrcacttg accactgtcc actctcctct 1320
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cttagtattt atacctctcc caagtaatag cattaatcag aaagtatcat gtctgcatcc 1440
ttcttgacat taatccaatt ctcatactaa cttcatctga aactttcttg atgttccttt 1500
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aaagagcagc cttggacagg atacttccag tttccaactg caccccggag ctgaccctgt 1800
gccacagctc tccataccca aattcctccc agaaagaacy ggtcwaccaa gagtactgac 1860
acayaggctt gcaggaggga caagccacmg 'tcagagatag caaggaccag ctaacaccag 1920
agataaccag atggcaagag gcaagggcaa aaatataagc aatgggaacc aagactattt 1980
ggcatcatca gaacctagtt ctctcaacat ggtgagccat ggctactcca acagacaaga 2040
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aaagcatgac tctgatttaa tgtcacagat gatgatgatg atgatgatga tgatgatgat 2100
gatgatgatg 2110

<210> 59
<211> 305
<212> PRT
<213> Mus musculus

<400> 59
Met Asp Glu Thr Ile Pro Gly Arg Ile Asp Ile Glu Thr Leu Ile Pro
 1   5   10   15
Asn Leu Met Ile Ile Ile Phe Gly Leu Val Gly Leu Thr Gly Asn Gly
            20   25   30
Ile Val Phe Trp Leu Leu Gly Phe Arg Met His Arg Asn Ala Phe Leu
        35   40   45
Val Tyr Ile Leu Asn Leu Ala Leu Ala Asp Phe Leu Phe Leu Leu Cys
    50   55   60
His Ile Ile Asn Ser Thr Met Leu Leu Leu Lys Val Leu Pro Pro Thr
65   70   75   80
Gly Ser Leu Phe His Cys Phe Asn Thr Ile Arg Thr Val Leu Tyr Ile
                85   90   95
Thr Gly Leu Ser Met Leu Ser Ala Ile Ser Thr Glu Arg Cys Leu Ser
            100   105   110
Val Leu Cys Pro Ile Trp Tyr Arg Cys Arg Arg Arg Glu Asn Thr Ser
        115   120   125
Ala Val Met Cys Ala Val Ile Trp Val Leu Ser Leu Leu Ile Cys Ile
    130   135   140
Leu Asn Ser Tyr Phe Cys Tyr Tyr Ser Gly Pro Lys Asp Val Asn Asn
145   150   155   160
Ser Val Cys Leu Val Ser Lys Phe Phe Ile Ser Thr Tyr Pro Met Phe
                165   170   175
Leu Phe Val Val Leu Cys Leu Ser Thr Leu Thr Leu Leu Ala Arg Leu
            180   185   190
Phe Cys Gly Ala Gly Lys Arg Lys Phe Thr Arg Leu Phe Val Thr Ile
        195   200   205
Ile Leu Thr Ile Leu Val Phe Leu Leu Cys Gly Leu Pro Leu Gly Phe
    210   215   220
Tyr Trp Phe Leu Leu His Cys Ile Lys Gly Ser Phe Ser Val Leu His
225   230   235   240
Asn Arg Leu Phe Gln Ala Ser Leu Val Leu Thr Ser Val Asn Ser Cys
                245   250   255
Ala Asn Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg Asp Arg Val
            260   265   270
Lys His Gln Thr Leu Lys Met Val Leu Gln Asn Ala Leu Gln Asp Thr
        275   280   285
Pro Glu Thr Pro Glu Asn Lys Val Glu Met Ser Arg Ser Lys Ala Glu
    290   295   300
Pro
305

<210> 60
<211> 740
<212> DNA
<213> Mus musculus

<400> 60

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tggacgaaac catccctgga agtattggca ctgagaccct gattcaaaac ttgatgatca 120
tcatcttcgg actggtcggg ctgacaggaa atgccattgt gttctggctc ctgggcttcc 180
acttgcacag gaatgccttt ttagtctaca tcctaaactt ggccctggct gatttcctct 240
tccttctctg tcacatcata gattccacag tgtttcttct caaggttccc ccacccaacc 300
ggatcttggt ccattgcttt aacatcatca gaattgtact ctacatcaca ggcttgagca 360
tgctcagtgc catcagcatg gagcgctgcc tgtctgtcct gtgccccatc tggtatcgct 420
gccgccgccc agaaaacaca tcaactgtca tttgtgctgt gatctggatc ctgtccctgt 480
tgttctgcat tctgaatgga tatttctgtt atttctctgg tcccaactat gtaaatgact 540
atgtgtgttt tgcatcggac atctttatca gaacataccc aatgtttttg tttgtagtcc 600
tctgtctgtc cactctggct ctgctggcca ggttgttctg tggtgctggg aagacgaaat 660
ttaccagatt attcgtcacc atcatactga ccgttttggt ttttcttctc tgtgggttgc 720
ccctgggctt cttctggttc                                           740
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<210> 61
<211> 227
<212> PRT
<213> Mus musculus

<400> 61

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Met Asp Glu Thr Ile Pro Gly Ser Ile Gly Thr Glu Thr Leu Ile Gln
 1               5                  10                  15
Asn Leu Met Ile Ile Ile Phe Gly Leu Val Gly Leu Thr Gly Asn Ala
            20                  25                  30
Ile Val Phe Trp Leu Leu Gly Phe His Leu His Arg Asn Ala Phe Leu
        35                  40                  45
Val Tyr Ile Leu Asn Leu Ala Leu Ala Asp Phe Leu Phe Leu Leu Cys
    50                  55                  60
His Ile Ile Asp Ser Thr Val Phe Leu Leu Lys Val Pro Pro Pro Asn
65                  70                  75                  80
Arg Ile Leu Val His Cys Phe Asn Ile Ile Arg Ile Val Leu Tyr Ile
                85                  90                  95
Thr Gly Leu Ser Met Leu Ser Ala Ile Ser Met Glu Arg Cys Leu Ser
            100                 105                 110
Val Leu Cys Pro Ile Trp Tyr Arg Cys Arg Arg Pro Glu Asn Thr Ser
        115                 120                 125
Thr Val Ile Cys Ala Val Ile Trp Ile Leu Ser Leu Leu Phe Cys Ile
    130                 135                 140
Leu Asn Gly Tyr Phe Cys Tyr Phe Ser Gly Pro Asn Tyr Val Asn Asp
145                 150                 155                 160
Tyr Val Cys Phe Ala Ser Asp Ile Phe Ile Arg Thr Tyr Pro Met Phe
                165                 170                 175
Leu Phe Val Val Leu Cys Leu Ser Thr Leu Ala Leu Leu Ala Arg Leu
            180                 185                 190
Phe Cys Gly Ala Gly Lys Thr Lys Phe Thr Arg Leu Phe Val Thr Ile
        195                 200                 205
Ile Leu Thr Val Leu Val Phe Leu Leu Cys Gly Leu Pro Leu Gly Phe
    210                 215                 220
Phe Trp Phe
225
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<210> 62
<211> 1979
<212> DNA
<213> Mus musculus

<400> 62
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<210> 63
<211> 305
<212> PRT
<213> Mus musculus

<400> 63
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Asn Leu Met Ile Ile Ile Phe Gly Leu Val Gly Leu Thr Gly Asn Ala
            20   25   30
Ile Val Phe Trp Leu Leu Gly Phe Arg Met His Arg Thr Ala Phe Ser
        35   40   45
Val Tyr Ile Leu Asn Leu Ala Leu Ala Asp Phe Leu Phe Leu Leu Cys
    50   55   60
His Ile Ile Asn Ser Thr Val Leu Leu Leu Gln Val Ser Pro Pro Asn
65   70   75   80
Ser Thr Leu Val His Cys Phe Asp Thr Ile Arg Met Val Leu Tyr Ile
                85   90   95
Ala Gly Leu Ser Met Leu Ser Ala Ile Ser Thr Glu His Cys Leu Ser
            100   105   110
Val Leu Cys Pro Ile Trp Tyr Arg Cys Arg Arg Pro Glu His Thr Ser
        115   120   125

```
Thr Val Met Cys Ala Val Ile Trp Val Leu Ser Leu Leu Ile Cys Ile
    130                 135                 140
Leu Ser Gly Tyr Phe Cys Asn Phe Phe Leu His Lys Tyr Val Tyr Tyr
145                 150                 155                 160
Ser Val Cys Arg Ala Leu Glu Phe Cys Ile Gly Thr Tyr Pro Met Phe
                165                 170                 175
Leu Phe Val Val Leu Cys Leu Ser Thr Leu Ala Leu Leu Val Arg Leu
            180                 185                 190
Phe Cys Gly Thr Gly Lys Ala Lys Phe Thr Arg Leu Phe Val Thr Ile
        195                 200                 205
Met Leu Thr Val Leu Val Phe Leu Leu Cys Gly Leu Pro Leu Cys Phe
    210                 215                 220
Phe Trp Phe Leu Val Val Trp Ile Lys Arg Pro Leu Ser Val Leu Asn
225                 230                 235                 240
Ile Thr Phe Tyr Phe Ala Ser Ile Val Leu Thr Val Val Asn Ser Cys
                245                 250                 255
Ala Asn Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg His Arg Leu
            260                 265                 270
Lys Gln Gln Asn Leu Lys Met Val Leu Gln Asn Ala Leu Gln Asp Thr
        275                 280                 285
Ala Glu Thr Pro Glu Asn Val Ala Glu Ile Ser Arg Ser Lys Ala Glu
    290                 295                 300
Pro
305
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<210> 64
<211> 1485
<212> DNA
<213> Mus musculus

<400> 64

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ccacagtgct tcttctcaag gttcccccac ccaacggtaa tattggtcca ttgcttcaac 420
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<210> 65
<211> 300
<212> PRT
<213> Mus musculus

<400> 65
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Phe Gly Leu Val Gly Leu Pro Gly Asn Ala Ile Val Phe Trp Leu Leu
            20   25   30
Gly Phe Cys Leu His Arg Asn Ala Phe Leu Val Tyr Ile Leu Asn Leu
        35   40   45
Ala Leu Ala Asp Val Leu Phe Leu Leu Cys His Ile Ile Asn Ser Thr
    50   55   60
Val Leu Leu Leu Lys Val Pro His Pro Thr Val Ile Leu Val His Cys
65   70   75   80
Phe Asn Ile Ile Arg Ile Val Leu Tyr Ile Thr Gly Leu Ser Met Leu
                85   90   95
Ser Ala Ile Ile Thr Glu Arg Cys Leu Ser Ile Leu Cys Pro Ile Trp
            100   105   110
Tyr Arg Cys His Arg Pro Glu His Thr Ser Thr Ala Met Cys Ala Val
        115   120   125
Ile Trp Val Leu Ser Leu Leu Ile Cys Ile Leu Gly Lys Tyr Phe Cys
    130   135   140
Asn Phe Phe Leu His Lys Tyr Val Asn Tyr Ser Val Cys Leu Ala Leu
145   150   155   160
Asp Ser Phe Ile Gly Thr Tyr Pro Met Phe Leu Leu Val Val Leu Cys
                165   170   175
Leu Ser Thr Met Ala Leu Leu Ala Arg Leu Phe Cys Gly Ser Gly Lys
            180   185   190
Thr Lys Phe Thr Arg Leu Phe Val Thr Ile Met Leu Thr Val Leu Val
        195   200   205
Phe Leu Leu Cys Leu Gly Leu Pro Leu Gly Phe Phe Trp Phe Leu Leu
    210   215   220
Leu Trp Ile Lys Gly Ala Tyr Ser Val Leu Gly Tyr Arg Phe Tyr Phe
225   230   235   240
Ala Ser Ile Val Leu Thr Ala Val Asn Ser Cys Ala Asn Pro Ile Ile
                245   250   255
Tyr Phe Phe Met Gly Ser Phe Arg Gln Arg Leu Gln His Lys Thr Leu
            260   265   270
Lys Ile Val Leu Gln Ser Ala Leu His Asp Thr Pro Glu Thr Pro Glu
        275   280   285
Asn Met Val Glu Met Ser Arg Ser Lys Ala Glu Pro
    290   295   300

<210> 66
<211> 1518
<212> DNA
<213> Mus musculus

<400> 66
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tcggcaatag cacccacaac aaccaaacca atggacgaaa ccatccctgg aagtattgac 180
actgagaccc tgtatccaac acttgatgat catcatcttc ggactggtcg ggctgacagg 240

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catcctaaac ttggccctag ctgacttcct ctaccttctc tgtcacatca tagattccac 360
aatgcttctt ctcaaggttc ccccacccaa ctggatcttg gtccattgct ttaggaccat 420
ccaaattttt ctctacatca caggcctgag catgctcagt gccatcagca cagagcgctg 480
cctgtctgtc ctgtgcccca tctggtatcg ctgccgccgc ccagaaaaca catcaactgt 540
gatgtgtgct gtgatctggg tcctgtcctt gttgatctgc attctgcatg gatatttttc 600
tgttatttct ctggtctcag ttatgaaaat tactctgtgt gttttgcatc agcgatcatt 660
atcagttcat acccaacgtt tttgcttgta gtcctctgtc tgtccaccct ggctctgctg 720
gccaggttgt tctgtggtgc tgggaagagg aaattttcca gattattcgt gaccatcata 780
cttaccgttt tggtttttct tctctgtggg ttgccctggg gagccctctg gttcccatta 840
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gaaaacatgg tggagatgtc aagaagtaaa gcagagccat gatgaagagc ctctgcctgg 1080
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ctttggaact tttgttgcca tggtaatagc ccaagtccag caccatgact ttcttatctg 1380
tgattgttct atacctgaat gtaaaggcaa aggagccagg agatgatcct gtgttacagt 1440
gctcattacc caaacaccac caagagagct tgtctcccag gagtgcagac acgcctgtga 1500
acacaggtaa gaccacca                                              1518

<210> 67
<211> 303
<212> PRT
<213> Mus musculus

<400> 67
Met Asp Glu Thr Ile Pro Gly Ser Ile Asp Thr Glu Thr Leu Tyr Pro
 1               5                  10                  15
Asn Leu Met Ile Ile Ile Phe Gly Leu Val Gly Leu Thr Gly Asn Gly
            20                  25                  30
Ile Val Leu Trp Leu Leu Gly Phe His Leu Gln Arg Asn Ala Phe Leu
        35                  40                  45
Val Tyr Ile Leu Asn Leu Ala Leu Ala Asp Phe Leu Tyr Leu Leu Cys
    50                  55                  60
His Ile Ile Asp Ser Thr Met Leu Leu Leu Lys Val Pro Pro Pro Asn
65                  70                  75                  80
Trp Ile Leu Val His Cys Phe Arg Thr Ile Gln Ile Phe Leu Tyr Ile
                85                  90                  95
Thr Gly Leu Ser Met Leu Ser Ala Ile Ser Thr Glu Arg Cys Leu Ser
            100                 105                 110
Val Leu Cys Pro Ile Trp Tyr Arg Cys Arg Arg Pro Glu Asn Thr Ser
        115                 120                 125
Thr Val Met Cys Ala Val Ile Trp Val Leu Ser Leu Leu Ile Cys Ile
    130                 135                 140
Leu His Gly Tyr Phe Cys Cys Tyr Phe Ser Gly Leu Ser Tyr Glu Asn
145                 150                 155                 160
Tyr Ser Val Cys Phe Ala Ser Ala Ile Ile Ile Ser Ser Tyr Pro Thr
                165                 170                 175
Phe Leu Leu Val Val Leu Cys Leu Ser Thr Leu Ala Leu Leu Ala Arg
            180                 185                 190
Leu Phe Cys Gly Ala Gly Lys Arg Lys Phe Ser Arg Leu Phe Val Thr
        195                 200                 205
Ile Ile Leu Thr Val Leu Val Phe Leu Leu Cys Gly Leu Pro Trp Gly
    210                 215                 220
```

```
Ala Leu Trp Phe Pro Leu Leu Trp Ile Gln Gly Gly Phe Trp Lys Arg
225                 230                 235                 240
Leu Phe Gln Ala Ser Ile Val Leu Ser Ser Val Asn Ser Cys Ala Asn
                245                 250                 255
Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg His Arg Leu Lys His
            260                 265                 270
Gln Thr Leu Lys Met Val Leu Gln Asn Ala Leu Gln Asp Thr Pro Glu
        275                 280                 285
Thr Thr Glu Asn Met Val Glu Met Ser Arg Ser Lys Ala Glu Pro
    290                 295                 300
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<210> 68
<211> 1500
<212> DNA
<213> Mus musculus

<400> 68
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ccttctctgc cacatcataa attccacagt acttcttctc aaggttcccc tacccaactg 180
gatcttgttc cattgcttta acaccatcag aattgttctt tacatcacag gcctgaacat 240
gctcagtgcc atcaacatgg agcactgcct gtctgtcctg tgccccatct ggtatcactg 300
ctgccgccca gaacacacat caactgtcat gtgtgctgtg atctgggtcc tgtccctgtt 360
gatctgcatt ctgaatgaat atttctgtga tttctttggt accaaattgg taaattacta 420
tgtgtgtctg gcatcgaact tctttatggg agcatacctg ttgtttttgt ttgtagtcct 480
ctgtctgtcc accctggctc tgctggccag gttgttctgt ggtgctggga atacgaaatt 540
taccagattt cacatgacca tcttgctgac ccctttgttc tttctcctct gcgggttgcc 600
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taacctttt ctagcattag aagtcctgac ttctattaac agctgtgaca accccatcat 720
ctatttcttc ctggactcct tcagacatca ggagaagcac cagaccctca aaatggttct 780
ccagagtgca ctgcaggata ctcytgagac acctgaaaac atggcagaga tgtcaagaag 840
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agcccagatc cagcaccatg actctcttgt ctgtgattgt tctgaacctg aatgtaaaga 1200
caaaggagag agaagatgat cctgtgtcac agtgctcatt acccaagcac cgccaagaga 1260
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aaagggacat gcctggaact ttcaagacag agtaacagag gagcaccctg gaacaggata 1380
cttccagttt ccaactgcac accggagctg accctatgca acagctctcc atacccaact 1440
tcttcccaca aagaactggt gctaccagga gtactgacac acaggttttc aggaaggaca 1500
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<210> 69
<211> 283
<212> PRT
<213> Mus musculus

<400> 69
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Leu Gly Phe Cys Leu His Arg Asn Ala Phe Leu Val Tyr Ile Leu Asn
            20                  25                  30
Leu Ala Leu Ala Asp Phe Leu Phe Leu Leu Cys His Ile Ile Asn Ser
        35                  40                  45
```

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Thr Val Leu Leu Leu Lys Val Pro Leu Pro Asn Trp Ile Leu Phe His
    50                  55                  60
Cys Phe Asn Thr Ile Arg Ile Val Leu Tyr Ile Thr Gly Leu Asn Met
65                  70                  75                  80
Leu Ser Ala Ile Asn Met Glu His Cys Leu Ser Val Leu Cys Pro Ile
                85                  90                  95
Trp Tyr His Cys Cys Arg Pro Glu His Thr Ser Thr Val Met Cys Ala
            100                 105                 110
Val Ile Trp Val Leu Ser Leu Leu Ile Cys Ile Leu Asn Glu Tyr Phe
        115                 120                 125
Cys Asp Phe Phe Gly Thr Lys Leu Val Asn Tyr Tyr Val Cys Leu Ala
    130                 135                 140
Ser Asn Phe Phe Met Gly Ala Tyr Leu Leu Phe Leu Phe Val Val Leu
145                 150                 155                 160
Cys Leu Ser Thr Leu Ala Leu Leu Ala Arg Leu Phe Cys Gly Ala Gly
                165                 170                 175
Asn Thr Lys Phe Thr Arg Phe His Met Thr Ile Leu Leu Thr Pro Leu
            180                 185                 190
Phe Phe Leu Leu Cys Gly Leu Pro Phe Ala Ile Cys Phe Leu Leu Phe
        195                 200                 205
Lys Ile Lys Asp Asp Phe His Val Phe Tyr Ile Asn Leu Phe Leu Ala
    210                 215                 220
Leu Glu Val Leu Thr Ser Ile Asn Ser Cys Asp Asn Pro Ile Ile Tyr
225                 230                 235                 240
Phe Phe Leu Asp Ser Phe Arg His Gln Glu Lys His Gln Thr Leu Lys
                245                 250                 255
Met Val Leu Gln Ser Ala Leu Gln Asp Thr Pro Glu Thr Pro Glu Asn
            260                 265                 270
Met Ala Glu Met Ser Arg Ser Lys Ala Glu Pro
        275                 280
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<210> 70
<211> 2504
<212> DNA
<213> Mus musculus

<400> 70
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tcatttctcc tgggagacca gttatttcta gaagaaattt aggtatgggg agttgtggca 180
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tggcaacaaa agttccaaag aaacamcaag aaaggttcag aggaagttag catgagaatt 480
tgattaatgt cataaaggat gcagacatga tactttctga ttaatgatat tactcgagag 540
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caaacaaaac atcaggtatg cagaagtaaa gaagttcaat gccagacacc cattgtcatt 1140

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<210> 71
<211> 301
<212> PRT
<213> Mus musculus

<400> 71

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Met Asp Lys Thr Ile Pro Gly Gly Ile Asn Ile Arg Ile Leu Ile Pro
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Asn Leu Ile Thr Ile Ile Phe Gly Leu Val Gly Leu Thr Gly Asn Ser
            20                  25                  30
Ile Val Phe Trp Ile Leu His Phe Pro Leu Arg Arg Asn Ala Phe Lys
        35                  40                  45
Val Tyr Ile Leu Asn Leu Asp Leu Ala Asp Phe Phe Phe Leu Leu Gly
    50                  55                  60
His Thr Ile Asp Ser Ile Leu Leu Leu Leu Asn Val Phe Tyr Pro Ile
65                  70                  75                  80
Ile Phe Ile Leu Cys Phe Tyr Ile Ile Met Met Val Leu Tyr Ile Ala
                85                  90                  95
Gly Leu Ser Met Leu Thr Ala Ile Ser Thr Glu His Gly Leu Ser Val
            100                 105                 110
Leu Cys Pro Ile Trp Asp Cys Cys His His Pro Glu His Thr Ser Ala
        115                 120                 125
Ala Met Cys Ala Val Ile Trp Val Leu Ser Leu Leu Ile Cys Ile Leu
    130                 135                 140
Asn Ser Tyr Phe Gly Phe Leu His Ser Lys Tyr Glu Asn Asp Asn Gly
145                 150                 155                 160
Cys Leu Ala Leu Asn Phe Phe Thr Ser Ala Tyr Leu Met Phe Leu Phe
                165                 170                 175
Val Asp Leu Cys Leu Ser Ser Leu Ala Leu Leu Ala Arg Leu Phe Cys
            180                 185                 190
Asp Val Gly Gln Met Lys Leu Thr Arg Tyr Val Thr Ile Leu Leu Thr
        195                 200                 205
Ala Leu Val Phe Leu Leu Cys Arg Leu Asn Phe Gly Ile Tyr Trp Phe
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    210                 215                 220
Leu Leu Cys Lys Ile Lys Asp Ala Phe His Val Phe Thr Leu Val Phe
225                 230                 235                 240
Tyr Leu Glu Ser Leu Val Met Thr Ala Ile Asn Ser Cys Ala Asn Ser
                245                 250                 255
Ile Ile Tyr Phe Phe Thr Gly Ser Phe Arg Leu Arg Leu Gln His Gln
            260                 265                 270
Thr Leu Lys Met Val Leu Gln Arg Thr Met Asp Thr Pro Glu Thr Pro
        275                 280                 285
Glu Asn Met Val Gly Met Ser Arg Ser Lys Ala Glu Pro
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<210> 72
<211> 2758
<212> DNA
<213> Mus musculus

<400> 72

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cggggtacag ttggaaactg gaagtatcct gtcccaggct gctcctctgt tcctgtgtcc 480
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gaatgtttca gatgaagtta gtatgagaat tggattaatg tcaggaagga tgcagacatg 780
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<210> 73
<211> 304
<212> PRT
<213> Mus musculus

<400> 73
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20 25 30
Ile Val Phe Trp Ile Leu Gly Phe Arg Phe His Arg Asn Ala Ile Leu
35 40 45
Val Tyr Ile Leu Asn Leu Ala Leu Ala Asp Phe Phe Phe Leu Leu Cys
50 55 60
His Ile Ile Asn Ser Thr Met His Leu Phe Lys Val Arg Pro His Asn
65 70 75 80
Ser Ile Phe Ile His Cys Phe Asp Thr Ile Arg Thr Val Leu Tyr Ile
85 90 95
Thr Gly Leu Ser Met Leu Ser Ala Ile Ser Thr Asp Arg Cys Leu Ser
100 105 110
Val Leu Cys Pro Ile Trp Tyr Arg Cys His Arg Pro His Thr Ser Thr
115 120 125
Ile Met Cys Val Val Ile Trp Val Leu Ser Leu Leu Ile Cys Leu Leu
130 135 140
Asn Arg Tyr Phe Cys Asp Leu Phe Gly Pro Lys Tyr Glu Ile Asn Ser
145 150 155 160
Val Cys Gln Ala Ser Glu Phe Phe Ile Arg Ile Tyr Pro Ile Phe Leu
165 170 175
Phe Val Val Leu Cys Phe Ser Thr Leu Thr Leu Leu Ala Arg Leu Phe
180 185 190
Cys Gly Ala Gly Lys Lys Lys Phe Thr Arg Leu Phe Met Thr Ile Met
195 200 205
Val Thr Ile Leu Val Phe Leu Leu Cys Gly Leu Pro Leu Gly Phe Leu
210 215 220
Trp Phe Leu Leu Pro Trp Ile Glu Gly Gly Phe Ser Ile Leu Asp Tyr
225 230 235 240
Arg Phe Phe Leu Ala Ser Leu Val Leu Thr Ala Val Asn Ser Cys Ala
245 250 255
Asn Pro Ile Ile Tyr Phe Phe Val Gly Ser Tyr Arg His Pro Leu Lys
260 265 270
His Lys Thr Leu Lys Met Val Leu Gln Ser Ala Leu Gln Asp Thr Pro
275 280 285
Glu Thr Pro Glu Asn Met Val Asp Ile Ser Arg Ser Lys Ala Glu Pro
290 295 300

<210> 74
<211> 1738

<212> DNA
<213> Mus musculus

<400> 74
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tctcaacatc acaggcctaa gcattctcag tgccatcagc actgagcgct gcctgtctgt 360
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tgtgatctga gtcctgtccc tgttgatttg cactctgtat agatatttct gtttttttct 480
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tggtttttct tctctgtggg atgcccctag gcttcttctg gttcgtgttc ccatggatta 720
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gattgttctg tacctacctg aatgtaaagc aaagtagcca ggagatgttc ctgtgtycca 1320
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accagagata accagatggc aagacacaag ggcaaaaaca taagcaatgg gaaccaagac 1680
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<210> 75
<211> 303
<212> PRT
<213> Mus musculus

<400> 75
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Asn Leu Met Ile Ile Ile Phe Gly Leu Val Gly Leu Thr Glu Thr Ala
            20   25   30
Phe Val Phe Leu Leu Gly Phe His Leu His Arg Asn Ala Phe Leu Val
        35   40   45
Tyr Ile Leu Asn Leu Ala Leu Thr Asp Phe Leu Phe Leu Leu Cys His
    50   55   60
Ile Ile Asn Ser Thr Val Ile Leu Leu Asn Val Pro Leu Pro Asn Met
65   70   75   80
Ile Leu Val His Cys Phe Ser Thr Ile Arg Ile Phe Leu Asn Ile Thr
                85   90   95
Gly Leu Ser Ile Leu Ser Ala Ile Ser Thr Glu Arg Cys Leu Ser Val
            100   105   110
Leu Cys Pro Ile Trp Tyr Arg Cys His His Pro Glu His Thr Ser Thr
        115   120   125
Val Met Cys Ala Val Ile Val Leu Ser Leu Leu Ile Cys Thr Leu Tyr

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    130                 135                 140
Arg Tyr Phe Cys Phe Phe Phe Gly Pro Lys Tyr Val Phe Asp Ser Val
145                 150                 155                 160
Cys Leu Ala Thr Thr Tyr Phe Ile Arg Thr Tyr Pro Met Phe Leu Phe
                165                 170                 175
Met Val Leu Cys Leu Ser Thr Leu Ala Leu Leu Ala Arg Leu Phe Cys
            180                 185                 190
Gly Ala Gly Lys Lys Lys Phe Thr Arg Leu Phe Val Thr Ile Met Leu
        195                 200                 205
Thr Val Leu Val Phe Leu Leu Cys Gly Met Pro Leu Gly Phe Phe Trp
    210                 215                 220
Phe Val Phe Pro Trp Ile Asn Cys Asp Phe Ser Val Leu Asp Tyr Arg
225                 230                 235                 240
Leu Phe Leu Ala Ser Ile Val Leu Thr Ala Val Asn Ser Tyr Gly Asn
                245                 250                 255
Pro Ile Ile Tyr Phe Phe Val Gly Ser Phe Arg Asn Arg Leu Lys His
            260                 265                 270
Gln Thr Leu Gln Lys Val Leu Gln Ser Ala Leu His Asp Thr Pro Glu
        275                 280                 285
Thr Pro Glu Asn Met Val Glu Met Ser Arg Ser Lys Ala Glu Pro
    290                 295                 300
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<210> 76
<211> 1011
<212> DNA
<213> Mus musculus

<400> 76
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gatattaata tgcttagaac aaagaaagaa aagtttattg ttcaatggtg aagtgtcttt 240
taaatagaag tgggcagagt gtcctggcaa acctcaattt ttaccttgac acagattaaa 300
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tctaggatgt ttgtggtcaa aatgttttcc catgaaacag aaaaggaaac tagaacatgc 660
acaaattacc taacagatat ttattaagtt agagaatatt ctaagttata caaatactaa 720
aggaaactac aaatgtggat ctattaaatt cttatttaaa caaaatctgt agagatgata 780
aattgttaaa aatgtcataa attttcaatc actatcaagt tcagttacca atgaaattca 840
gttattaact gaaaactcct gatctttgga tgaagaaggg gcttgtcaaa aatgggagca 900
gtcttggacc tataattatt acagtgggtc tcatctcaag gggatccagt gaagtgtcat 960
taagaggaga gtaggaaagt tcaacatagt atttctatta aaagtggtgt a          1011
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<210> 77
<211> 274
<212> PRT
<213> Mus musculus

<400> 77
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Val Leu Trp Leu Leu Gly Phe His Met His Arg Asn Ala Phe Ser Val
            20                  25                  30
```

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Tyr Ile Leu Asn Ala Gly Ala Asn Phe Leu Phe Leu Cys Pro Tyr Ile
        35                  40                  45
Val Phe Ser Leu Val Thr Ile Thr Val Asn Phe His Ser Ile Asn Ser
    50                  55                  60
His Ile Ile Leu Phe Leu Asn Thr Val Phe Thr Leu Ala Tyr Leu Ala
65                  70                  75                  80
Gly Val Ser Met Ile Thr Ala Ile Ser Val Glu Tyr Trp Leu Ser Val
                85                  90                  95
Ile Trp Ser Asn Trp Tyr His Gly Arg His Pro Lys His Thr Ser Ala
            100                 105                 110
Phe Ile Cys Thr Leu Leu Trp Ala Val Ser Leu Leu Leu Ser Leu Pro
        115                 120                 125
His Glu Ile Ile Cys Gly Leu Leu Asp His Ile Tyr Asn Trp Asp Met
    130                 135                 140
Cys Trp Lys Cys Lys Leu Ile Ile Val Val Trp Leu Leu Ile Glu Phe
145                 150                 155                 160
Val Val Leu Ser Gln Ser Asn Gln Ala Met Met Phe Arg Ile Phe Cys
                165                 170                 175
Gly Ser Gln Gln Thr Pro Met Thr Arg Leu Phe Val Thr Ile Val Leu
            180                 185                 190
Thr Ala Leu Val Val Leu Ile Cys Gly Phe Pro Leu Gly Ile Tyr Ile
        195                 200                 205
Tyr Phe Leu Tyr Trp Thr Thr Asp Val Tyr Phe Ile Met Pro Cys Asn
    210                 215                 220
Ser Phe His Glu Thr Ile Leu Leu Leu Ser Ala Val Asn Ser Cys Ala
225                 230                 235                 240
Asn Pro Ile Ile Cys Leu Leu Val Gly Ser Ile Lys His Cys Gln Phe
                245                 250                 255
Gln Cys Gly Thr Leu Arg Leu Ile Leu Gln Arg Ala Ile Gln Asp Thr
            260                 265                 270
Pro Glu
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<210> 78
<211> 1358
<212> DNA
<213> Mus musculus

<400> 78

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acacagctga aaatggaagc tacactgaaa tgttctcctg tatcaccacg ttcaataccc 240
tgaattttct tactgtcatc attgctgtgg ttgtcctggc aggaaattcc atagtgctat 300
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ctatactgtt gagcctcctg gtaggactag gctgtggttt tctgttcaga tattctgaat 660
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atcatttact tccttgttgg ctctattagg caccacaggt tgaaatggca gtctcttaag 1020
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tcagaaaggt ctggggaact ggaaagagtc tagtgcagta gtggagtgag tccttgatca 1140
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gttcaatcag tagagaaaat agtcatttta tagaaattag gaggaacagg cttgttacac 1260
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<210> 79
<211> 268
<212> PRT
<213> Mus musculus

<400> 79
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Tyr Val Leu Asn Leu Ala Gly Ala Asp Phe Leu Tyr Leu Cys Thr Gln
35 40 45
Ile Val Tyr Ser Leu Glu Cys Val Ile Gln Phe Asp Lys Ser Ser Phe
50 55 60
Tyr Ile Leu Leu Ile Leu Ser Met Phe Ala Tyr Leu Ala Gly Leu Ser
65 70 75 80
Met Ile Ala Thr Ile Ser Thr Glu Arg Cys Leu Ser Val Met Trp Pro
85 90 95
Ile Trp Tyr His Cys Gln Arg Pro Arg His Thr Ser Ala Ile Met Ser
100 105 110
Val Leu Leu Trp Val Phe Ser Ile Leu Leu Ser Leu Leu Val Gly Leu
115 120 125
Gly Cys Gly Phe Leu Phe Arg Tyr Ser Glu Tyr Tyr Phe Cys Ile Thr
130 135 140
Leu Asn Phe Ile Thr Ala Ala Phe Ile Ile Gly Leu Ser Val Val Leu
145 150 155 160
Ser Val Ser Ser Leu Thr Leu Leu Val Lys Ile Ile Cys Gly Ser His
165 170 175
Arg Ile Pro Val Thr Arg Leu Phe Val Thr Ile Cys Phe Thr Val Val
180 185 190
Val Phe Ile Ile Phe Gly Met Pro Leu Gly Ile Cys Trp Phe Leu Phe
195 200 205
Pro Ser Ile Ile Glu Phe His Lys Ile Phe Ser Asn Asn Phe Tyr Glu
210 215 220
Met Ile Ala Phe Leu Ser Cys Ile Asn Ser Cys Ala Asn Pro Ile Ile
225 230 235 240
Tyr Phe Leu Val Gly Ser Ile Arg His His Arg Leu Lys Trp Gln Ser
245 250 255
Leu Lys Leu Leu Leu Gln Arg Ala Met Gln Asp Thr
260 265

<210> 80
<211> 2387
<212> DNA
<213> Mus musculus

<400> 80
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gcctaaaaga tatttattaa gttagagaat attctaagtc atacaaatac taaaggaaac 420
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cccaaaagga taagggcaaa tttgtcctat aagttctctt gtgtatcatc acagcagctc 840
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aagcccagaa gctgcagcac tatgacattt cctgtcagtc caatgatggc aatgataatg 1740
gaaagcaaac tcatggcaag ggacatgtca caagatgaag attccatgaa gtagctttca 1800
ttctgttctc tgaattcaat attccagtct gggaagcttg aatccatgtt tgggaacact 1860
cctggaataa aaaacaagac ataatcgcat gctttgcatt ctctaattca caagaccacc 1920
ctgatatttg taagctgata tggcacaaaa tgatggaaaa tgagcttaag aaatttatca 1980
aaaccagtat gtttagagac ttcttttaaa accagtctga atttatttgg gttatctaca 2040
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catgttgtgt ggcagaatga aatggaacac tgaacctgta ggggtttgag tataatggca 2160
tccatcaatc catacatttg aatatacagt cactgtttgg tggaactgtt tggagaaggg 2220
ttatatgtag gggtaattct gatgctaagg tcctgctccc caatcagtta ttgatatgtt 2280
gctaaagaaa gacattggcc ctctgctggt caggggggag ggcaaagggt gatttacagg 2340
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<210> 81
<211> 273
<212> PRT
<213> Mus musculus

<400> 81

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Leu Leu Ser Ile Ile Ile Ala Ile Ile Gly Leu Thr Gly Asn Val Ile
 1               5                  10                  15
Val Leu Gln Leu Leu Gly Phe His Met His Arg Asn Ala Phe Ser Val
            20                  25                  30
Tyr Ile Phe Asn Leu Ser Gly Ala Asn Phe Leu Phe Leu Cys Thr His
        35                  40                  45
Ile Val Phe Ser Leu Glu Ile Ser Leu Gly Ser Phe Thr Thr Ser Thr
    50                  55                  60
Phe Thr Trp Ala Leu Phe Ser Val Asn Val Thr Ile Leu Ala Tyr Leu
65                  70                  75                  80
Ala Gly Val Ser Met Ile Thr Ala Ile Ser Val Glu Tyr Trp Leu Ser
                85                  90                  95
```

```
Val Leu Trp Pro Thr Trp Tyr His Ala Gln Arg Pro Lys His Thr Ser
            100                 105                 110
Thr Val Ile Cys Thr Leu Leu Trp Val Phe Ser Leu Leu Leu Thr Leu
        115                 120                 125
Trp Asn Trp Ile Ile Cys Lys Val Leu Asp Tyr Ile Tyr Asn Trp Asp
    130                 135                 140
Met Cys Trp Lys Leu Ala Leu Ile Ile Val Val Trp Leu Leu Val Leu
145                 150                 155                 160
Phe Val Val Leu Ser Arg Ser Asn Gln Ala Leu Leu Phe Arg Val Phe
                165                 170                 175
Cys Gly Ser Gln Gln Thr Pro Val Thr Arg Leu Leu Val Thr Ile Met
            180                 185                 190
Leu Thr Ala Leu Val Val Leu Ile Cys Gly Phe Gly Ile Gly Ile Cys
        195                 200                 205
Phe Phe Tyr Trp Lys Lys Glu Glu Asn Ser Ile Met Pro Cys Gly Tyr
    210                 215                 220
Phe Tyr Glu Thr Ile Leu Leu Leu Ser Gly Val Asn Ser Cys Ala Asn
225                 230                 235                 240
Pro Ile Ile Cys Leu Phe Val Gly Ser Ile Lys His Cys Gln Phe Gln
                245                 250                 255
Cys Gly Thr Leu Arg Leu Ile Leu Gln Arg Ala Ile Gln Glu Ser Pro
            260                 265                 270
Glu
```

<210> 82
<211> 1319
<212> DNA
<213> Mus musculus

<400> 82

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gcatgtgctc attgttttgt ttattttgtt ccagaaatag tactggagac ttcctaaaca 120
aggatctaag catctcaacc ttggaagcta actccagaac atctactgaa cccaatgata 180
cttcaggttg tggcatcaag ttccaaacca agatgttgct ttccctcatt tccctgtttg 240
ggatggtact aaatcccata gtgctgtgat tgctgagctt ccaggtgcac aggaatgcct 300
tgtttgtcta catcctcaac cttgctgtgg ttgacatttt cttccggttt gatcagtttg 360
cattttgtgt ttttgttatc atttacacta tcaagtccat ttccaatgat atcctatcat 420
tttttatttt tgtgccagca tttctgtatc ttttaagcct gagcattctc ataaccatta 480
gcattgaacg atgcctgtat gtcatgtggc ccatctggta tcactgtcaa tgtccaagac 540
acacatcagc tgtcatttgt gtcttgcttt gggctctgtc ccttgtgttt atgtttctgg 600
atgggaaggc atatttttta ctgttttctg accctaactc tttttggtat cagacatttg 660
atatcatcat tactgtatag acaattgttt tatttgtggt tctctgtggg tccagcttaa 720
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tcattgcact cagagtgctt ttcttcctga tatttagttt tccctttttgg atctactggc 840
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tattaagagc tgtgtcaact ccatcattta ctttcttgtt gcctccatta tgcacagtag 960
tggattcaag gtgaagagtc tcaaactatt tccagagaga gccatgcagg acattcctga 1020
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taatttaatg accttattca gtttgttact taatcttcaa tcagttaaaa atgacaatca 1200
tttttgtaat agttgaaaga tacagtactt gtcacacaaa tattaactgt gccatttctc 1260
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<210> 83
<211> 264

<212> PRT
<213> Mus musculus

<400> 83
Leu Ile Ser Leu Phe Gly Met Val Leu Asn Pro Ile Val Leu Leu Leu
 1   5   10   15
Ser Phe Gln Val His Arg Asn Ala Leu Phe Val Tyr Ile Leu Asn Leu
            20   25   30
Ala Val Val Asp Ile Phe Phe Arg Phe Asp Gln Phe Ala Phe Cys Val
        35   40   45
Phe Val Ile Ile Tyr Thr Ile Lys Ser Ile Ser Asn Asp Ile Leu Ser
    50   55   60
Phe Phe Ile Phe Val Pro Ala Phe Leu Tyr Leu Leu Ser Leu Ser Ile
65   70   75   80
Leu Ile Thr Ile Ser Ile Glu Arg Cys Leu Tyr Val Met Trp Pro Ile
                85   90   95
Trp Tyr His Cys Gln Cys Pro Arg His Thr Ser Ala Val Ile Cys Val
            100   105   110
Leu Leu Trp Ala Leu Ser Leu Val Phe Met Phe Leu Asp Gly Lys Ala
        115   120   125
Tyr Phe Leu Leu Phe Ser Asp Pro Asn Ser Phe Trp Tyr Gln Thr Phe
    130   135   140
Asp Ile Ile Ile Thr Val Thr Ile Val Leu Phe Val Val Leu Cys Gly
145   150   155   160
Ser Ser Leu Ile Leu Leu Phe Arg Ile Phe Cys Gly Ser Gln Gln Ile
                165   170   175
Pro Val Thr Arg Leu Asp Val Ile Ile Ala Leu Arg Val Leu Phe Phe
            180   185   190
Leu Ile Phe Ser Phe Pro Phe Trp Ile Tyr Trp Leu Leu Asp Gln Arg
        195   200   205
Ile Gly Arg Arg Cys Asn Phe Leu Asn Glu Met Ile Phe Leu Ser Cys
    210   215   220
Ile Lys Ser Cys Val Asn Ser Ile Ile Tyr Phe Leu Val Ala Ser Ile
225   230   235   240
Met His Ser Ser Gly Phe Lys Val Lys Ser Leu Lys Leu Phe Pro Glu
                245   250   255
Arg Ala Met Gln Asp Thr Pro Glu
            260

<210> 84
<211> 2349
<212> DNA
<213> Mus musculus

<400> 84
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cccaaatata tatgaatgat atatttaaat taaggctcca gaaatattga ttttgataaa 180
ttgcttcatg tctaccaccc tgtttcacca ttttaagaac taggtaaacc gttaacatct 240
ataatggtga tcctaagaat cagagaacaa aaagcatgtg ttcatgtctt gtttttcttt 300
ccagaaacat cagtggaagg gatctaagag tggattcaaa cataacatac tggggaacaa 360
acatcacagc tgtgaatgaa agcaaccaya ctggaatgtc attttgtgaa gtcgtgtctt 420
gtaccatgkt ttttctttcc ctcattgttg ccctagttgg gctggttgga aatgccacag 480
tgctgtggtt cctgggcttc cagatgcgca ggaatgcatt ctctgtttac atcctcaacc 540
tcgctggtgc tgactttctc ttcatttgct ttcaaattgg atattgtttt cacatgatct 600
tggacattga ttccatcccc attgaaattg atctgtttta ccttgttgtg ttaaactttc 660

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tgtggcccat ttggtatcac tgccaacgcc caaggcacac atcagctgtc atatgtaccc 780
tgctttgggt cttgtcccta gtgtgtagcc tcctggaagg gaaggaatgt ggcttcctat 840
attacactag tgaccctggt tggtgtaaga catttgattt aatcactgct acatggttaa 900
ttgttttatt tgtagctctc ttgggatcca gtctggcctt agtgattacc atcttctggg 960
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ggaagactct caagctattt ctgcagagag ccatgcaaga cactcctgag gaggaagaat 1260
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gagctgcttt gatcaggcat aaagagctct gaagagaact atgtttttat cactttgttg 1380
cattttcata acgttgttta gttgatgacc caaggttaac tcagttggga aagtagtcaa 1440
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ctatcttgct cagggtttta ccaacttctt ttgatgttac tccttgcaag ctctgtgggg 1560
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tacaggaaag ggttgcattt cttaactcac ttaacttgat agtggataaa ttcatgttat 1680
attttgcaaa aaaattattc tgtttcaagg caaacttttc ttcagtgttg aagggttaaa 1740
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gcaatagttt ttcttataca catttcttaa taaagaagta aacattctca agagaagtgt 1860
taaacatcca tgtacatagg aaggtgcagt gtcctctgtg gttctattca cagtttcctt 1920
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atccctcatg aaaagtttcc aatgaggtcc tctataaaga ctcccttgaa atacaactta 2040
ttttaaattt ataccatttc aaggagccca cagcatctat taacttagct atatgcacag 2100
tttagtaaaa ttttctataa aataatattc cttttataaa gctgcagtaa taatttcaat 2160
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cttaagttaa tgtagctgca tgactctgta cctaatcaag acacaaaata ctacactata 2280
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<210> 85
<211> 273
<212> PRT
<213> Mus musculus

<400> 85

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Val Leu Trp Phe Leu Gly Phe Gln Met Arg Arg Asn Ala Phe Ser Val
            20                  25                  30
Tyr Ile Leu Asn Leu Ala Gly Ala Asp Phe Leu Phe Ile Cys Phe Gln
        35                  40                  45
Ile Gly Tyr Cys Phe His Met Ile Leu Asp Ile Asp Ser Ile Pro Ile
    50                  55                  60
Glu Ile Asp Leu Phe Tyr Leu Val Val Leu Asn Phe Pro Tyr Phe Cys
65                  70                  75                  80
Gly Leu Ser Ile Leu Ser Ala Ile Ser Ile Glu Arg Cys Leu Ser Val
                85                  90                  95
Met Trp Pro Ile Trp Tyr His Cys Gln Arg Pro Arg His Thr Ser Ala
            100                 105                 110
Val Ile Cys Thr Leu Leu Trp Val Leu Ser Leu Val Cys Ser Leu Leu
        115                 120                 125
Glu Gly Lys Glu Cys Gly Phe Leu Tyr Tyr Thr Ser Asp Pro Gly Trp
    130                 135                 140
Cys Lys Thr Phe Asp Leu Ile Thr Ala Thr Trp Leu Ile Val Leu Phe
145                 150                 155                 160
Val Ala Leu Leu Gly Ser Ser Leu Ala Leu Val Ile Thr Ile Phe Trp
```

```
                165                 170                 175
Gly Leu His Lys Ile Pro Val Thr Arg Leu Tyr Val Ala Ile Val Phe
            180                 185                 190
Thr Val Leu Val Phe Leu Leu Phe Gly Leu Pro Tyr Gly Ile Tyr Trp
        195                 200                 205
Phe Leu Leu Val Trp Ile Glu Lys Phe Tyr Tyr Val Leu Pro Cys Ser
    210                 215                 220
Ile Tyr Pro Val Thr Val Phe Leu Ser Cys Val Asn Ser Ser Ala Lys
225                 230                 235                 240
Pro Ile Ile Tyr Cys Leu Val Gly Ser Ile Arg His His Arg Phe Gln
                245                 250                 255
Arg Lys Thr Leu Lys Leu Phe Leu Gln Arg Ala Met Gln Asp Thr Pro
            260                 265                 270
Glu
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<210> 86
<211> 1313
<212> DNA
<213> Mus musculus

<400> 86

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gtgttgattg tttcttcaaa atccaagtca tgggttttct ttccctcatc atttcccctg 180
ttgggatggt attaaattcc acagtgctgt ggtttctggg cttccagata cgtaggaatg 240
ccttctctgt ctacatcctc aacctggccg gggctgactt tctcttcctg cactctcagt 300
ttttatttta ccttcttgct atttttccct ccattcctat ccagatccct ctcttttttg 360
atatgttgac aaaatttgca tatctttctg ggctgagcat tctcagcacc attagcattg 420
agcgctgcct gtgtgtcatg tggcccatct ggtaccgctg tcaaagacca agacacacat 480
catctgtaac ctgttccttg ctttgggctt tgtccctgtt gtttgctctt ctggatggga 540
tgggatgtgg cttactgttt aatagttttg accagtcttg gtgtttgaaa tttgatttaa 600
tcatttgtgc gtggtcaatt gttttatttg tggttctctg tgggtccagt ctcatcctac 660
ttgttaggat cttctgtggc tcccagcaga tccctgtgac caggctgtat gtgaccattg 720
cactcacagt gttattcttc ctaatctgct gtcttccctt tggaatctcc tggatcatcc 780
aatggagtga aactttgata tatgttggat tttgtgatta ttttcacgag gaactattcc 840
tatcctgtat taacagctgt gccaacccta tcatttactt ccttgttggt tttattcgtc 900
agcgaaagtt ccaacagaag tctctgaagg tgcttcttca aagagcgatg gaggacactc 960
ctgaagaaga aaatgaagac atgggtcctt caagaaatcc agaagaattt gaaacagtct 1020
gtagcaactg agaggttctt tgatcagaca gaaatggttt tttagagaaa aaaatttttt 1080
ctcatttctg tgggccattt tcacagtttt gyacagtttg tttcctgata ttcaatcagt 1140
taaaaaataa gcatttttgt gaaagtggat agatacaaga cttgtcatac aaatactgac 1200
tgtagtattt ttggagctgt tactcagact ttcatcatct ccttttgatg ggattccatg 1260
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```

<210> 87
<211> 270
<212> PRT
<213> Mus musculus

<400> 87

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Phe Leu Ser Leu Ile Ile Ser Pro Val Gly Met Val Leu Asn Ser Thr
 1               5                  10                  15
Val Leu Trp Phe Leu Gly Phe Gln Ile Arg Arg Asn Ala Phe Ser Val
            20                  25                  30
Tyr Ile Leu Asn Leu Ala Gly Ala Asp Phe Leu Phe Leu His Ser Gln
```

```
        35                  40                  45
Phe Leu Phe Tyr Leu Leu Ala Ile Phe Pro Ser Ile Pro Ile Gln Ile
    50                  55                  60
Pro Leu Phe Phe Asp Met Leu Thr Lys Phe Ala Tyr Leu Ser Gly Leu
65                  70                  75                  80
Ser Ile Leu Ser Thr Ile Ser Ile Glu Arg Cys Leu Cys Val Met Trp
                85                  90                  95
Pro Ile Trp Tyr Arg Cys Gln Arg Pro Arg His Thr Ser Ser Val Thr
            100                 105                 110
Cys Ser Leu Leu Trp Ala Leu Ser Leu Leu Phe Ala Leu Leu Asp Gly
        115                 120                 125
Met Gly Cys Gly Leu Leu Phe Asn Ser Phe Asp Gln Ser Trp Cys Leu
    130                 135                 140
Lys Phe Asp Leu Ile Ile Cys Ala Trp Ser Ile Val Leu Phe Val Val
145                 150                 155                 160
Leu Cys Gly Ser Ser Leu Ile Leu Leu Val Arg Ile Phe Cys Gly Ser
                165                 170                 175
Gln Gln Ile Pro Val Thr Arg Leu Tyr Val Thr Ile Ala Leu Thr Val
            180                 185                 190
Leu Phe Phe Leu Ile Cys Cys Leu Pro Phe Gly Ile Ser Trp Ile Ile
        195                 200                 205
Gln Trp Ser Glu Thr Leu Ile Tyr Val Gly Phe Cys Asp Tyr Phe His
    210                 215                 220
Glu Glu Leu Phe Leu Ser Cys Ile Asn Ser Cys Ala Asn Pro Ile Ile
225                 230                 235                 240
Tyr Phe Leu Val Gly Phe Ile Arg Gln Arg Lys Phe Gln Gln Lys Ser
                245                 250                 255
Leu Lys Val Leu Leu Gln Arg Ala Met Glu Asp Thr Pro Glu
            260                 265                 270
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<210> 88
<211> 1883
<212> DNA
<213> Mus musculus

<400> 88
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gagggaggca tttgttccca gtgagagctg ttctgacccc aagagattac aagggttaca 180
tcacaagggg gtgcagtaag gcatacataa ggcagtttga tggtgctgca gtgaatttct 240
gagtaacaag ctccatttct cctaatttga ataaaatgac tattttctct accaattaaa 300
caagattgtg aaaactgcct acatagataa aagcaaaatt gactctcaga gaaactatgt 360
ctcatcaagt actctttcaa agcctgcact agactctttc cagttcccta gcctttgtga 420
aggacccctc tctcctctct tttcctcact actgtcctac atggttctct gcagaagttg 480
cttcaaactc tgacattgca acctacggtg cctaacagag ccaaggagag agtaaataat 540
gggattggca cagctgttaa cacaggaatg ctatcacttc aaaaacattg tatgagaaca 600
tgctatgtaa gtccataaac attgtcaaga ggaatgtgca gattccaatg ggcataccaa 660
agaatatgaa gaccatcaat gtgagggcaa tggacacata gaacatggtc acaggaatcc 720
tgagtgatac acagaacatt tgacaaacag ggccaggcta gacacaaaak aaaccacaga 780
taatactatt atcaatgcag tagygatata gtggcatrta atacagaaat tgtgttcwta 840
ataacttaac agaaagccac agccttgtrc aaasrgaagg atcarcagta tagagaaaac 900
ccagagcaga gcacacatga cagctgatgt gtgtcttggt cttcagcagt gataccagat 960
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aagttaagca atcataaatc ctgtgaggat aaaatgatag tagatcataa gtatcttaag 1080
gaaacactgc aggggaatgt acaaactgtg tgcaaatttg caagaaatca gcacaagaca 1140
ggtttaagac atagacagag aaggcattcc tatgcaggtg gaaggctaga agccatagca 1200

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ctatggcatt tcctgccagg ccaagcacag caatgatgac aataagaaaa ttgaatgtgg 1260
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cattccaggg tggttggatc catgcttagg aattttccac tggcattcct gcaaagaaat 1380
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acaggtacat aaggagggag aaacaggatc acagagatta agtaatttac caacattcca 1500
aaagtgctac acatttttga aatccatttt gtactattca gtctaactgc agaccagtat 1560
gatgtaaggt agttgatggt cccagtacag ttgctaggca tttatttcag gttatgtgag 1620
gaagagacag aactctgaaa ccaacattct ttttgttcta gggctgagat ttcttctctg 1680
gtgtaggaaa atggaagttc ttggtgcaag ccatatcttc cctcagtcac tgggaggaat 1740
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tggtacttgc tatgaagacc tgtaggggaa tagccatgct tcttatgctt gaaagggtag 1860
ttgctcattt aacaatttta aaa                                        1883
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<210> 89
<211> 263
<212> PRT
<213> Mus musculus

<400> 89

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Val Leu Trp Leu Leu Ala Phe His Leu His Arg Asn Ala Phe Ser Val
            20                  25                  30
Tyr Val Leu Asn Leu Ser Cys Ala Asp Phe Leu Gln Ile Cys Thr Gln
        35                  40                  45
Phe Val His Ser Pro Ala Val Phe Leu Lys Ile Leu Met Ile Tyr Tyr
    50                  55                  60
His Phe Ile Leu Thr Gly Phe Met Ile Ala Leu Ala Gly Leu Cys Met
65                  70                  75                  80
Ile Ser Thr Ile Ser Ala Glu His Cys Leu Ser Val Met Trp Pro Ile
                85                  90                  95
Trp Tyr His Cys Arg Pro Arg His Thr Ser Ala Val Met Cys Ala Leu
            100                 105                 110
Leu Trp Val Phe Ser Ile Leu Leu Ile Leu Leu Phe Val Gln Gly Cys
        115                 120                 125
Gly Phe Leu Leu Ser Tyr Tyr Glu His Asn Phe Cys Ile Ile Cys His
    130                 135                 140
Tyr Ile Ala Thr Ala Leu Ile Ile Val Leu Ser Val Val Ser Phe Val
145                 150                 155                 160
Ser Ser Leu Ala Leu Phe Val Thr Met Phe Cys Val Ser Leu Arg Ile
                165                 170                 175
Pro Val Thr Met Phe Tyr Val Ser Ile Ala Leu Thr Leu Met Val Phe
            180                 185                 190
Ile Phe Phe Gly Met Pro Ile Gly Ile Cys Thr Phe Leu Leu Thr Met
        195                 200                 205
Phe Met Asp Leu His Ser Ser Ser His Thr Met Phe Leu Lys His Ser
    210                 215                 220
Cys Val Asn Ser Cys Ala Asn Pro Ile Ile Tyr Ser Leu Leu Gly Ser
225                 230                 235                 240
Val Arg His Arg Arg Leu Gln Cys Gln Ser Leu Lys Gln Leu Leu Gln
                245                 250                 255
Arg Thr Met Asp Ser Ser Glu
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<210> 90
<211> 1219

<212> DNA
<213> Mus musculus

<400> 90
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agatttgtga gcatggatcc aaccatctca tcccacaaca cagaatctac accactgaat 180
gaaactggtc attccaaatg cagtccaatc ctgactctgt cctttctggt cctcatcact 240
gtcctggtgg aactaggagg aagcaccatt gtactctggc tcctggaatt cagcatgccc 300
aggaaagcca tctcagtcta tgtcctcaat ctggctctgg cagactcctt cttcctcggc 360
tgcgatttca ttgaatttct gctacggatc attgacttca tctatgccca taaattaagc 420
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<211> 270
<212> PRT
<213> Mus musculus

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Tyr Val Leu Asn Leu Ala Leu Ala Asp Ser Phe Phe Leu Gly Cys Asp
        35   40   45
Phe Ile Glu Phe Leu Leu Arg Ile Ile Asp Phe Ile Tyr Ala His Lys
    50   55   60
Leu Ser Lys Asp Ile Leu Gly Asn Thr Ala Ile Ile Pro Tyr Ile Ala
65   70   75   80
Gly Gln Asn Val Leu Ser Ala Ile Ser Met Glu His Cys Leu Ser Val
                85   90   95
Leu Trp Pro Ile Trp Tyr His Tyr His His Pro Arg Asn Met Ser Ala
            100   105   110
Ile Ile Cys Ala Leu Ile Trp Val Leu Tyr Phe Leu Met Gly Ile Leu
        115   120   125
His Trp Phe Phe Ser Val Phe Leu Gly Glu Ala His His His Leu Arg
    130   135   140
Lys Lys Val Asp Phe Thr Ile Thr Ala Phe Leu Ile Phe Leu Phe Met
145   150   155   160
Leu His Ser Val Ser Ser Leu Ala Leu Leu Leu Arg Ile Leu Cys Gly
                165   170   175
Ser Arg Arg Lys Pro Leu Ser Arg Leu Tyr Val Thr Ile Ala Leu Thr
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Val Met Val Tyr Leu Ile Ser Gly Leu Pro Leu Gly Leu Tyr Leu Phe

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        195                 200                 205
Leu Leu Tyr Trp Phe Gly Val His Leu His His Pro Ser Cys His Asn
    210                 215                 220
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225                 230                 235                 240
Ile Ile Tyr Phe Ile Val Gly Ser Phe Arg Pro Leu Arg Lys His Ser
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<210> 92
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<212> DNA
<213> Mus musculus

<400> 92

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<212> PRT
<213> Mus musculus

<400> 93

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            20                  25                  30
Tyr Val Leu Asn Leu Ala Leu Ala Asp Ser Val Phe Leu Cys Cys His
        35                  40                  45
Phe Ile Asp Ser Leu Leu Cys Ile Ile Asp Phe Tyr Leu Cys Pro Asp
    50                  55                  60
Ala Asp Thr Leu Gly Asn Ala Glu Ile Ile Pro Tyr Ile Thr Gly Leu
65                  70                  75                  80
Ser Ile Leu Ser Ala Ile Ser Met Glu Asp Tyr Leu Ser Val Leu Trp
                85                  90                  95
Pro Ile Trp Tyr His Cys His His Pro Arg Asn Met Ser Thr Ile Leu
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            100                 105                 110
Cys Ala Leu Ile Trp Val Leu Ser Phe Leu Met Gly Ile Leu Asp Trp
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Phe Phe Ser Gly Phe Leu Gly Glu Thr His His Tyr Leu Lys Asn Val
    130                 135                 140
Asp Phe Ile Ile Thr Ala Phe Leu Ile Phe Phe Phe Ile Leu Leu Leu
145                 150                 155                 160
Ser Gly Ser Ser Leu Ala Leu Leu Leu Arg Ile Leu Cys Gly Ser Arg
                165                 170                 175
Arg Lys Pro Leu Ser Arg Leu Tyr Ala Thr Ile Ser Leu Thr Val Met
            180                 185                 190
Val Tyr Leu Ile Cys Gly Leu Pro Leu Gly Leu Tyr Leu Phe Leu Leu
        195                 200                 205
His Ser Phe Gly Val Asn Leu His His Pro Phe Cys His Leu Tyr Lys
    210                 215                 220
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<212> DNA
<213> Mus musculus

<400> 94

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<211> 269
<212> PRT
<213> Mus musculus

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Val Leu Asn Leu Ala Leu Gly Asp Ser Phe Phe Leu Cys Cys His Phe
        35   40   45
Ile Asp Ser Leu Leu Trp Ile Ile Asp Phe Ile Tyr Ala His Lys Leu
    50   55   60
Asn Lys Asp Ile Leu Gly Asn Ala Ala Ile Ile Pro Tyr Met Ala Gly
65   70   75   80
His Ser Leu Leu Ser Ala Ile Ser Met Glu His Cys Leu Ser Val Leu
                85   90   95
Trp Pro Ile Trp Tyr Asp Phe His His Gln Ser Asn Met Ser Ala Ile
            100   105   110
Leu Tyr Ala Leu Ile Trp Val Leu Ser Ile Leu Ile Gly Ile Leu Asp
        115   120   125
Trp Phe Phe Leu Gly Phe Leu Gly Glu Thr Asn His His Leu Cys Glu
    130   135   140
Asn Val Ala Phe Ile Ile Thr Ala Phe Leu Ile Phe Leu Phe Met Leu
145   150   155   160
Leu Ser Val Ser Ser Leu Ala Leu Leu Leu Arg Ile Leu Cys Gly Pro
                165   170   175
Arg Lys Lys Pro Leu Ser Arg Leu Val Thr Ile Ser Leu Thr Val Met
            180   185   190
Val Tyr Leu Ile Cys Gly Leu Pro Leu Gly Leu Tyr Phe Phe Leu Leu
        195   200   205
His Trp Phe Gly Val His Leu His Tyr Pro Ser Cys His Ile Tyr Gln
    210   215   220
Val Thr Ala Val Leu Ser Cys Val Asn Ser Ser Ala Asn Pro Ile Ile
225   230   235   240
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<211> 1954
<212> DNA

<213> Mus musculus

<400> 96
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<211> 272
<212> PRT
<213> Mus musculus

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            20   25   30
Tyr Val Leu Asn Leu Ala Leu Ala Asp Ser Phe Phe Leu Ser Cys Gln
        35   40   45
Phe Ile Asp Ser Leu Leu Trp Ile Leu Asp Phe Ile Ala His Lys Leu
    50   55   60
Ser Lys Asp Ile Leu Trp Asn Ala Ala Ile Ile Pro Asn Asn Ala Gly
65   70   75   80
Leu Ser Tyr Leu Ser Ala Ile Ser Met Glu His Cys Leu Pro Val Leu
                85   90   95
Trp Pro Ile Trp His His Cys His His Thr Arg Asn Met Ser Ala Ile
            100   105   110

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Ile Cys Ala Leu Ile Trp Val Leu Ser Phe Leu Met Gly Ile Leu Asp
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Tyr Phe Ser Gly Phe Leu Gly Glu Thr His His Gln Leu Trp Lys Asn
    130                 135                 140
Val Asp Phe Ile Leu Thr Ala Phe Leu Ile Val Phe Phe Phe Leu Phe
145                 150                 155                 160
Met Leu Leu Ser Gly Ser Ser Leu Ala Leu Arg Leu Arg Ile Leu Cys
                165                 170                 175
Gly Ser Arg Arg Lys Pro Leu Ser Leu Leu Tyr Val Ile Ile Ser Leu
            180                 185                 190
Thr Val Met Val Tyr Leu Ile Cys Gly Leu Pro Val Gly Leu Tyr Leu
        195                 200                 205
Phe Leu Leu Asn Trp Phe Gly Val His Leu His His Pro Ile Cys His
    210                 215                 220
Ile Tyr Gln Val Thr Ala Leu Leu Pro Phe Val Asn Ser Phe Ala Lys
225                 230                 235                 240
Pro Ile Ile Ser Phe Ile Val Gly Ser Phe Arg His Cys Arg Lys His
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<210> 98
<211> 1893
<212> DNA
<213> Mus musculus

<400> 98

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<212> PRT
<213> Mus musculus

<400> 99
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Tyr Val Leu Asn Leu Ala Leu Gly Asp Ser Phe Phe Cys Cys His Phe
35 40 45
Ile Asp Ser Leu Leu Trp Ile Ile Asp Phe Ile Tyr Ala His Lys Leu
50 55 60
Ser Lys Asp Ile Leu Gly Asn Val Ala Ile Val Pro Tyr Ile Ala Gly
65 70 75 80
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85 90 95
Pro Ile Trp Tyr His Cys His His Pro Arg Asn Met Ser Ala Ile Leu
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115 120 125
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165 170 175
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180 185 190
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Leu His His Pro Ser Pro His Ile Tyr Gln Val Thr Val Val Leu Ser
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Tyr Val Asp Ser Ser Ala Asn His Ile Phe Tyr Phe Leu Ala Gly Ser
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<211> 1290
<212> DNA
<213> Mus musculus

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actccttctt cctcagctgc caattcattg actctctgct ttgaagcatt gacttcctct 840
atgcatataa attaagcaaa gatatcttag gcaatgcagc aatcgttccc tatatcgcag 900
ggctgagtat cctcagtgct attagcatgg agcactgcct gtctgtatag tggcaaatgc 960
ggtaccactg ccactaccca agaaacatgt cagctatcct atgtgcccta atctgggttc 1020
tgtcttttct catggacatc ctggattggt tcttctcagg attcctgggt gagactcatc 1080
atcatttatg gaaaaatatt gacttcatta taactgcatt tctgattttt ttatttatgc 1140
ttctctctgg ctccagtctg gccctactgc tgaggattct ttatggcttc aagaggaaac 1200
ccctgtccag gctatatatt atcatctctc tcacagtgat ggtctacctc atctgggcct 1260
gccccttggg ctttcatttt tcctgttaca                                  1290
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<210> 101
<211> 207
<212> PRT
<213> Mus musculus

<400> 101

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Leu Val Leu Ile Thr Val Leu Phe Glu Leu Ala Gly Asn Thr Ile Val
 1               5                  10                  15
Leu Trp Leu Leu Gly Phe His Met Thr Arg Lys Val Ile Ser Val Tyr
            20                  25                  30
Val Leu Asn Leu Ala Leu Ala Asp Ser Phe Phe Leu Ser Cys Gln Phe
        35                  40                  45
Ile Asp Ser Leu Leu Ser Ile Asp Phe Leu Tyr Ala Tyr Lys Leu Ser
    50                  55                  60
Lys Asp Ile Leu Gly Asn Ala Ala Ile Val Pro Tyr Ile Ala Gly Leu
65                  70                  75                  80
Ser Ile Leu Ser Ala Ile Ser Met Glu His Cys Leu Ser Val Trp Gln
                85                  90                  95
Met Arg Tyr His Cys His Tyr Pro Arg Asn Met Ser Ala Ile Leu Cys
            100                 105                 110
Ala Leu Ile Trp Val Leu Ser Phe Leu Met Asp Ile Leu Asp Trp Phe
        115                 120                 125
Phe Ser Gly Phe Leu Gly Glu Thr His His His Leu Trp Lys Asn Ile
    130                 135                 140
Asp Phe Ile Ile Thr Ala Phe Leu Ile Phe Leu Phe Met Leu Leu Ser
145                 150                 155                 160
Gly Ser Ser Leu Ala Leu Leu Leu Arg Ile Leu Tyr Gly Phe Lys Arg
                165                 170                 175
Lys Pro Leu Ser Arg Leu Tyr Ile Ile Ile Ser Leu Thr Val Met Val
            180                 185                 190
Tyr Leu Ile Leu Gly Leu Pro Leu Gly Leu Ser Phe Phe Leu Leu
        195                 200                 205
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<210> 102
<211> 1389
<212> DNA
<213> Mus musculus

<400> 102
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gatccaaaca tctcatccca caacacagaa tctactccac tgaatgaaac tggtcatcca 120
aacttcagta caatactcac gctgtccttt ctggtcctcg tcactgtcct cgtggaactg 180
gcaggaaaca ccattgtact ctggctcctg ggattccgca tgcacaggaa agccatctca 240
gtctatgtcc tcaatctggc tctggcagac tccttcttct gctgccattt cattgactct 300
ctgctatgga tcactgactt catctatacc cataaattaa gcaaagatat cttacgcaat 360
gcagcaattg ttccctatat cgcaagactg agcgtcctca gtgctattag aatggagcac 420
ttactgttta tattgtggcc aatctggtac cactgccacc acccaagaaa catatcagct 480
atcctatgtg ccctaatctg ggttctgttc tttctcatgg gcatccttga ttggttcttc 540
ttaggattcc tgggtgagac tcatcatcat ttgtggaaaa atattgactt tattatacct 600
gcatttctga ttttttttaat gctgctttct gggtccactc tggccctact gctgaggata 660
ctttgtggtt ccaggaggaa actcctgtcc aggctgtatg ttaccatctc tctcacagtg 720
atggtctacc tcatctgtgg catgcctctt gggctttact tgttcctgtt atactggttt 780
gggattcatt tacactatcc ctcttgtcac atttaccaag ttactgcact cttgtcctat 840
gtggacagct ctgccaacca catcttttat ttccttgtag gctcctttag gcattttaga 900
aagcattggt ccctctaaac tattctaaag aggaccctgg agaacattcc tgaggaggat 960
gaatatacag acagctatct tcagaatacc actgagatgt cagaaatcag atgttgagag 1020
tcaacacatt aacttactct tctctcagaa acgcctcagt gattgcaacg ctttcaattt 1080
ttttgtttgt ttggtttttt ttttttgga ttgttttaaa ttaggtattt tggtatttta 1140
catttccaaa tttatattta tacttccaaa agtcccccat accttcccct gccaatcccc 1200
tacccacttt ttggccctgg cgtttccctg tactggggca tataaagttt gcaagtccag 1260
tgggcctctc tttccagtga tggcctacta agccatcttt tgatacatat gcagctagag 1320
tcaagagctc cagggtactg attaattcat aatgttgttc cacctatagg gttgcagatc 1380
cctttagca 1389

<210> 103
<211> 206
<212> PRT
<213> Mus musculus

<400> 103
Phe Phe Cys Cys His Phe Ile Asp Ser Leu Leu Trp Ile Thr Asp Phe
 1   5   10   15
Ile Tyr Thr His Lys Leu Ser Lys Val Tyr Leu Thr Gln Cys Ser Asn
            20   25   30
Phe Pro Tyr Ile Ala Arg Leu Ser Val Leu Ser Ala Ile Arg Met Glu
        35   40   45
His Leu Leu Phe Ile Leu Trp Pro Ile Trp Tyr His Cys His His Pro
    50   55   60
Arg Asn Ile Ser Ala Ile Leu Cys Ala Leu Ile Trp Val Leu Phe Phe
65   70   75   80
Leu Met Gly Ile Leu Asp Trp Phe Phe Leu Gly Phe Leu Gly Glu Thr
                85   90   95
His His His Leu Trp Lys Asn Ile Asp Phe Ile Ile Pro Ala Phe Leu
            100   105   110
Ile Phe Leu Met Leu Leu Ser Gly Ser Thr Leu Ala Leu Leu Leu Arg
        115   120   125
Ile Leu Cys Gly Ser Arg Arg Lys Leu Leu Ser Arg Leu Tyr Val Thr
    130   135   140
Ile Ser Leu Thr Val Met Val Tyr Leu Ile Cys Gly Met Pro Leu Gly
145   150   155   160
Leu Tyr Leu Phe Leu Leu Tyr Trp Phe Gly Ile His Leu His Tyr Pro
                165   170   175
Ser Cys His Ile Tyr Gln Val Thr Ala Leu Leu Ser Tyr Val Asp Ser
            180   185   190
Ser Ala Asn His Ile Phe Tyr Phe Leu Val Gly Ser Phe Arg

195 200 205

<210> 104
<211> 1420
<212> DNA
<213> Mus musculus

<400> 104
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tgtaccccct gagggaaggt cagagatggc tgcatagagg gtgcaactcc tgtgaaggat 120
gagtgaattg tcattccttc tgccatctta gcaatcccct ggccaggtga ctgacaggta 180
caacattgtc aactcaaggg aggakrtaaa tgyrtgtgat ccttaatcta gagcacagac 240
cagagtcaca tmtcaaccca gagttagggg tagaaytcag aatccattct tttgatgatg 300
aggaagtatc tttcccttaa tatgcctcaa caaaaccctg atatcatcat cttttctgtg 360
tcattttaag ccctggggag gtaaatgtga tgcttcccct tctggagtta ccaaggtggc 420
aggaaatgga tccaaccctg accatgaaaa aaggaaatcg tttccatgtg aattaaagat 480
cctgagttat acacaggaag aatgatgcag actatagagt aaacacaagc tctaaatttg 540
aatccacagt ccagaattct taatcccatg tggtcatgtt actttccttt tatttataaa 600
tcattttatt taataatgtt gacaagaata tctatattay rttatgattg ccagaagaag 660
ggtcagtgtt aatgtgctca aatatggtct gtgttctcag ggacacaact ggaagatttg 720
tgagcatgga ttcaaccatc tcatcccaca acacaawatc tacacaactg aatgaaactg 780
stratcctaa ctgcagtcca atcctgacmc tgyccttcct ggccctcatc actgccctgg 840
tttgactggc agaaaacact attatactct gactcctggg attccccatg cacaggaaag 900
ccatctcagt ctatatcctc aaccaggctc tggcagactc cttcttcctc tgctgtcact 960
tccttgactc tatgctacag atcattgact tctatggcat ctatggccat aaattaagca 1020
aagatatctt aggcaatgca gcaatcattc cctatatcac agggctgagc gtcctcagtg 1080
ctattagcac tgcctgtcta tattgtggcc aatctggtac cattgccacc acccaagaaa 1140
catgtcaggt atcatatgtg ccctaatctg ggttctgtcc tttctcatgg gcatccttga 1200
ttggttcttc tcaggattcc tgggtgagac tcattatcat ttgtgggaaa atgttgactt 1260
tattataact gcatttttta tttatgcttc tctctgggtc tactcatgag gatcctctgt 1320
ggaggaaacc cctgtccagg ctgtatgtta ccatctctct cacagtgatg ggctacctca 1380
tctgtggcct gcctcttggg ctttacttgt ctctgttaca 1420

<210> 105
<211> 200
<212> PRT
<213> Mus musculus

<400> 105
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Leu Leu Leu Gly Phe Pro Met His Arg Lys Ala Ile Ser Val Tyr Ile
20 25 30
Leu Asn Gln Ala Leu Ala Asp Ser Phe Phe Leu Cys Cys His Phe Leu
35 40 45
Asp Ser Met Leu Gln Ile Ile Asp Phe Tyr Gly Ile Tyr Gly His Lys
50 55 60
Leu Ser Lys Asp Ile Leu Gly Asn Ala Ala Ile Ile Pro Tyr Ile Thr
65 70 75 80
Gly Leu Ser Val Leu Ser Ala Ile Ser Thr Asp Leu Ser Ile Leu Trp
85 90 95
Pro Ile Trp Tyr His Cys His His Pro Arg Asn Met Ser Gly Ile Ile
100 105 110
Cys Ala Leu Ile Trp Val Leu Ser Phe Leu Met Gly Ile Leu Asp Trp
115 120 125
Phe Phe Ser Gly Phe Leu Gly Glu Thr His Tyr His Leu Trp Glu Asn

```
    130                 135                 140
Val Asp Phe Ile Ile Thr Ala Phe Phe Ile Val Cys Phe Ser Leu Gly
145                 150                 155                 160
Leu Leu Met Arg Ile Leu Cys Gly Gly Ile Pro Leu Ser Arg Leu Tyr
                165                 170                 175
Val Thr Ile Ser Leu Thr Val Met Gly Tyr Leu Ile Cys Gly Leu Pro
            180                 185                 190
Leu Gly Leu Tyr Leu Ser Leu Leu
        195                 200
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<210> 106
<211> 730
<212> DNA
<213> Mus musculus

<400> 106
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catcccacaa cacagaatca caccactgaa tgaaactggt catcccaact gcagtccaat 120
cctgacacca ttctttctgg tcctcatcac tgtactggtg gaattggcag gggaacacca 180
ttatactctg gctcctggga tttcgcatga acaggaaagc aatctcagtt tatgtcctca 240
atctggctct ggcagactcc ttcttttcct ctgttgccat ttcattgact ctctgctaca 300
gaacattgac ttcatcaatg cccataaatt aagcaaacat atcttaggaa atgcagcaat 360
cattccctat attgcagggc tgagcctcct cagtgctatt agcatggagc actgcctgtt 420
tatattatgg ccaatctggt accactgcca ccacatgtca gctatcatat gtgccctaat 480
ctgggttccg tcctttctca agggcatcct caatttgttc ttctcaggat tcctgggtga 540
gactcatcat catttgtggg aaaatattga ctttattata actgcatttc tgatttttt 600
atttatgctt ctctgtgggt gcactttggc cctagagctg aggatactct gtggctccag 660
gaagaaaccc ctgtccaggc tgtaagttac catctctctc acagcgatgg tctacctcat 720
ctgtggcctg 730

<210> 107
<211> 198
<212> PRT
<213> Mus musculus.

<400> 107
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Phe Leu Val Leu Ile Thr Val Leu Val Glu Leu Ala Gly Asn Thr Ile
 1               5                  10                  15
Ile Leu Trp Leu Leu Gly Phe Arg Met Asn Arg Lys Ala Ile Ser Val
            20                  25                  30
Tyr Val Leu Asn Leu Ala Leu Ala Asp Ser Phe Val Phe Leu Cys Cys
        35                  40                  45
His Phe Ile Asp Ser Leu Leu Gln Asn Ile Asp Phe Ile Asn Ala His
    50                  55                  60
Lys Leu Ser Lys His Ile Leu Gly Asn Ala Ala Ile Ile Pro Tyr Ile
65                  70                  75                  80
Ala Gly Leu Ser Leu Leu Ser Ala Ile Ser Met Glu His Cys Leu Phe
                85                  90                  95
Ile Leu Trp Pro Ile Trp Tyr His Cys His His Met Ser Ala Ile Ile
            100                 105                 110
Cys Ala Leu Ile Trp Val Pro Ser Phe Leu Lys Gly Ile Leu Asn Leu
        115                 120                 125
Phe Phe Ser Gly Phe Leu Gly Glu Thr His His His Leu Trp Glu Asn
    130                 135                 140
Ile Asp Phe Ile Ile Thr Ala Phe Leu Ile Phe Leu Phe Met Leu Leu
145                 150                 155                 160
```

```
Cys Gly Cys Thr Leu Ala Leu Glu Leu Arg Ile Leu Cys Gly Ser Arg
                165                 170                 175
Lys Lys Pro Leu Ser Arg Leu Val Thr Ile Ser Leu Thr Ala Met Val
            180                 185                 190
Tyr Leu Ile Cys Gly Leu
        195
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<210> 108
<211> 847
<212> DNA
<213> Mus musculus

<400> 108

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aaggtgatca aatatggcct gttttcctca gggacaccaa tgggtgattt gtttagcatg 180
gatccaacca tctcatccca caacacagaa tcacaccact gaatgaacct ggcccatccc 240
gactgcaatc caatcctggt tctgtccttt ctggtcctca tcgctgtcct ggtggaactg 300
gcaggaaaca ccattgttct ctggctcctg ggattccgca tgcacaggaa acccatctca 360
gtctatgtcc tcaatctggc tctggcagac tccttcttcc tctgctgcca tttcattgac 420
tctctgctac aaatcattga cttcacctat gcccataaat taagcaaaga tatcttagac 480
aatgcagcaa ttgttccctt tatcacaggg ctgagggtcc tcagtgctat tagcatggag 540
cactgcctgt ctgtattgtg gctaatctgg taccactgcc accacctgag aaatatgtca 600
gctatcctat gtgccctaat ctgggttctg tcctttctca tgtccatcct ggactagttc 660
ttctcagaat tcctgcatga gactcatcat catttgtggg aaaatgttga ctttattata 720
actgcatttc tgatttttt atttatgctt ctctttaggt ccagtctggc cctactgcgg 780
aggatcctcc tgtggctcca ggaggaaata cctgtccacg ctatatgtta tcatttctct 840
cacagtg                                                         847
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<210> 109
<211> 192
<212> PRT
<213> Mus musculus

<400> 109

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Phe Leu Val Leu Ile Ala Val Leu Val Glu Leu Ala Gly Asn Thr Ile
 1               5                  10                  15
Val Leu Trp Leu Leu Gly Phe Arg Met His Arg Lys Pro Ile Ser Val
            20                  25                  30
Tyr Val Leu Asn Leu Ala Leu Ala Asp Ser Phe Phe Leu Cys Cys His
        35                  40                  45
Phe Ile Asp Ser Leu Leu Gln Ile Ile Asp Phe Thr Tyr Ala His Lys
    50                  55                  60
Leu Ser Lys Asp Ile Leu Asp Asn Ala Ala Ile Val Pro Phe Ile Thr
65                  70                  75                  80
Gly Leu Arg Val Leu Ser Ala Ile Ser Met Glu His Cys Leu Ser Val
                85                  90                  95
Leu Trp Leu Ile Trp Tyr His Cys His His Leu Arg Asn Met Ser Ala
            100                 105                 110
Ile Leu Cys Ala Leu Ile Trp Val Leu Ser Phe Leu Met Ser Ile Leu
        115                 120                 125
Asp Phe Phe Ser Glu Phe Leu His Glu Thr His His His Leu Trp Glu
    130                 135                 140
Asn Val Asp Phe Ile Ile Thr Ala Phe Leu Ile Phe Leu Phe Met Leu
145                 150                 155                 160
Leu Phe Arg Ser Ser Leu Ala Leu Leu Arg Arg Ile Leu Cys Gly Ser
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                165                 170                 175
Arg Arg Lys Tyr Leu Ser Thr Leu Tyr Val Ile Ile Ser Leu Thr Val
            180                 185                 190
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<210> 110
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 110
Phe Met Arg Phe
1

<210> 111
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 111
Phe Leu Arg Phe
1

<210> 112
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 112
Asn Pro Ala Phe
1

<210> 113
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 113
Asn Pro Phe Phe
1

<210> 114
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<221> AMIDATION
<222> (4)...(4)

<400> 114
Phe Met Arg Phe
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<210> 115
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 115
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 1   5   10

A1
cancel